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Heart Surgery Today

Treatment of heart disease by the surgeon has shown tremendous progress since the end of the last century when Bilroth wrote, "The surgeon who should attempt to suture a wound of the heart would lose the respect of his colleagues." Most of this advance has occurred in the past 10 years during which heart surgery has changed from an occasional heroic attempt to save life to one of the most important means of attacking our nation's greatest killer.

Virtually every known type of heart disease has found a suggested surgical remedy. Some of these procedures so far have been of questionable value. Others, as in the case of mitral stenosis, not only are eminently successful but are the accepted preferred method of treatment in symptomatic cases. Enough time has elapsed so that thousands of cases of mitral stenosis have been reviewed showing not only a low operative risk (less than 0.5 per cent in group III mitral stenosis patients in some series) but also good long-term results.

The loose grouping of great vessel surgery with heart surgery is no longer tenable. It is true that some of the first surgery for heart disease (the cardiac failure associated with patent ductus arteriosus and coarctation of the aorta) was by direct attack on the great vessels. Other heart disease due to intracardiac abnormalities has been palliated by great vessel surgery. The most important in this group has been the Blalock-Taussig operation for tetralogy of Fallot.

Actual surgery upon or within the heart groups itself naturally into four eras. The first, that of extracardiac surgery, has yielded successful results primarily in the suturing of penetrating cardiac wounds, the resection of the incar-

cerating membrane of constrictive pericarditis, and the many proposed operations for angina pectoris. The second era, that of blind intracardiac surgery, was ushered in as a practical therapeutic implement by the successful removal of foreign bodies from within the heart during World War II. It has reached its pinnacle in the treatment of mitral stenosis and has been helpful in the treatment of other valvular lesions and the closure of some types of interatrial septal defects.

The third era, open cardiac surgery, is the newest, and has opened an entire new vista. First, hypothermia and then the successful use of various pump-oxygenators have made surgery within the heart's chambers, under direct vision, feasible. The urgency and ease of repair of certain congenital lesions heretofore inaccessible have led to its first application here. Although techniques are steadily improving, many congenital defects are now completely repaired with a low surgical risk. Research already is yielding methods of using this new tool to treat the much more common acquired forms of heart disease. Certain lesions of rheumatic valvulitis which so far have resisted the search for consistently good surgical repair have been the first to succumb. Even coronary artery disease may find a better surgical solution through the application of new techniques while awaiting the answer to its prevention through medicine.

With little foresight one can predict that the fourth era of cardiac surgery will be that of replacement. It is recognized that the pathology of certain lesions has been the limiting factor to consistently successful surgical therapy. The present day blind intracardiac surgery or open heart surgery for far advanced calcific aortic stenosis is a worthwhile lifesaving measure but gives only a few patients long-term "cures." Consistent success and long-term good results must await the replacement with a suitable substitute of the nearly irreparably damaged aortic valve found in many cases. That replacement is feasible is attested by the tolerance of the circulatory system to plastic grafts, the Hufnagel valve, and various intracardiac plastic protheses for valvular lesions and large septal defects previously used in animals and patients. The combination of open heart methods and better understanding of hemodynamics will allow the fashioning and replacement of these prosthetic devices in the proper place within the heart itself.

Heart surgery has contributed to a better understanding of pathological hemodynamics, and thereby more accurate clinical diagnosis and better physiologic diagnostic methods. This has been made possible by the surgeon's observation and palpation of the hemodynamics in diseased hearts during surgery, and has been necessitated by the availability of sound surgical therapy for certain lesions.

The speed with which new, better surgical procedures are being developed may make an acceptable procedure of today outmoded tomorrow. This places a great responsibility upon the physician caring for cardiac patients. A doctor today can seldom, with conscience, tell a patient that there is "no cure for his heart disease," unless he has just conferred with a surgeon who is active and familiar with the development of new techniques and has the experience and understanding of pathological hemodynamics to help evaluate that patient's disease as to (a) its prognosis without intervention and (b) the risks of possible surgery compared with the benefits to be gained therefrom. The conscientious surgeon must decide if the patient is better off with his disease than with the surgery available at this particular time. This decision is one which requires not only a thorough understanding of heart disease and of the newest surgical techniques but also careful evaluation of the individual patient and his disease.

A modern heart operation is a complex procedure and a far cry from surgery which can be safely performed by a surgeon and nurse. It requires the close cooperation of a team composed of anesthesiologists, several surgeons,

cardiologists or pediatricians, physiologists, blood bank personnel, and nurses. This same concept is true in the modern treatment of heart disease. The time is past when a single physician can always determine and provide what is best for every cardiac patient. Modern cardiac therapy requires the close cooperation of the patient's family physician, a cardiologist or pediatrician, the cardiac physiologist with modern diagnostic techniques, and the surgeon who is not only familiar with the latest techniques available but also with the life history of the various types of heart disease.

—HUGH E. WILSON, M.D., F.A.C.S., Dallas.

What's Right with Medical Education

Medical education isn't perfect today, but then it never has been. Today more than ever before the curriculum is a matter of adjustment and compromise—adjustment to accommodate rapidly accumulating important new information into an already crowded program, and compromise between emphasis on basic principles and emphasis on their application.

Many people talk about fragmentation of medical training today, fragmentation in the sense of disconnected teaching. But a study of medical curricula reveals that almost all schools are aware of this danger and have taken steps to protect themselves against it. For instance, introductory courses dealing with the "whole man" are given during the freshman year, and there are lectures in psychiatry, correlation clinics, and considerations of the social-economic aspects of the patient and his family. Of course there are still anatomy and biochemistry and physiology, and these subjects still get the lion's share of attention during the first year—and this is as it should be.

All of these matters are under virtually constant study. I know of no medical school in the United States in which the curriculum committee is not one of the most active of committees, constantly reevaluating distribution of curricular time, course content, and teaching methods. Nor do I know of any medical school in this country which is not in the process of testing new methods of teaching which include developing further correlation between subjects which at first glance seem disconnected. Though the titles of many courses remain unchanged, as Professor Wright put it in discussing the curriculum of Swarthmore College, ". . . if one looks, one can see that under the old labels there are new ideas working like new wine. And once in a while an old bottle bursts in a gentlemanly sort of way." Those of you who have been away from school for awhile should pay a visit to find out how much more today's medical students are learning than we did (I was graduated 21 years ago).

John Ellis said, "Medical education . . . is the vital link between medicine and medical practice. It is responsible for passing the advances of medicine on to professional practice, and is itself subject to changes in both." It produces and is, at the same time, a product. Aside from the obvious fact that every physician has attained his basic professional knowledge as the result of his *past* experiences with medical education, the medicine of the *future* is in process of development, influenced largely by medical education of the *present*. But there is a long lag in this process. This year's freshman class of medical students will not be making much impact upon society in general and medicine in particular for perhaps 10 or 15 years. All of us, as physicians, should evince an effective interest and concern in medical education; we should have been doing it throughout the years! But if we have not done this, now is not too late to activate our interest.

What's to be done? First, and most important, we need to develop an informed and sympathetic understanding of the problems of medical education. Once this is accomplished many opportunities will present themselves—opportunities to influence favorably the public at large or particular persons who are in a posi-

tion to influence financial support of medical schools—opportunities to stimulate the finest of young men and women to pursue a career in medicine—opportunities to plan and participate in improved and expanded postgraduate training activities. Sympathetic understanding of medical education implies recognition that a school of medicine is a thing of many parts and that the whole is greater than the sum of those parts. It implies recognition of the fact that although the medical school has a basic obligation to train men who will become good general practitioners there is also responsibility to train some who ultimately will become specialists and that, further, it is essential to train a few who will pursue academic pathways and dedicate their life to teaching and research—just as when a farmer harvests his field of wheat, some of the wheat must be saved for seed so that there can be a crop next year.

The antithesis of such sympathetic understanding, and an attitude to avoid, is that of the well-meaning but narrow-minded person who believes that all students should be turned out according to a particular pattern, a pattern which represents his own unique concept of what a medical graduate should be—a pattern fitted to his own peculiar needs. Tolerance and an understanding of the many problems of the medical educator will go a long way toward softening such a point of view and will go far toward helping medical schools to accomplish their goal of producing ever finer physicians of all sorts and varieties.

To those of you who want to pursue further the current problems of medical education, I recommend study of the report of the Fifth Teaching Institute of the Association of American Medical Colleges, "The Ecology of the Medical Student," a 262 page monograph which comprises the *Journal of Medical Education* for October, 1958. This presents many of the challenges which face medical education today—and some possible solutions.

—HOWARD C. HOPPS, M.D., Galveston.

Safety in Numbers?

Safety in numbers? Perhaps, but not in obstetrics! In 1958, the Committee on Maternal Mortality of the Texas Medical Association found that 84 per cent of maternal deaths which occurred in Texas were in multiparas. How often has it been said, "She's had two easy deliveries; nothing to worry about"? How often has some obstetric catastrophe followed, often including maternal death?

The "big three," hemorrhage, toxemia, and infection, still lead the list of causes of maternal deaths in Texas. However, anesthetic complications, associated medical diseases, and other related conditions are rapidly becoming more important.

The Committee on Maternal Mortality of the Texas Medical Association is a study committee and not a punitive group. Its purpose is to establish a cause of maternal death and determine how these deaths may be avoided. With the help and cooperation of each member of the Texas Medical Association, the maternal death rate in Texas may be greatly decreased.

If it should become necessary for you to complete a questionnaire for the committee, please give as much help as possible. These questionnaires are anonymous when reviewed by the committee, and there is no possibility of identification of individuals, hospitals, or communities.

From time to time, the committee hopes to publish in the *Texas State Journal of Medicine* case histories of maternal deaths in Texas. Recommendations of the committee on how these deaths may be avoided also will be added to these discussions. The importance of this committee in Texas cannot be over-emphasized, since the maternal death rate in Texas is one of the highest in the nation.

Safety in numbers? Perhaps, but not in obstetrics.

—STEWART A. FISH, M.D., Dallas.

Positive Approach for Aged

A positive answer to the Forand proposal is Blue Cross-Blue Shield's individual enrollment plan which the company is offering during the month of October only to persons in good health regardless of age, with four excellent plans from which to choose.

This trial plan is of utmost concern to the Texas Medical Association. Its Committee on Health Insurance is vitally interested in determining facts about the assurance of adequate health care for people over age 65. It is estimated that by 1960, Texas will have a population of 696,000 persons 65 and over. By 1970, approximately 862,000 persons will be of this age. A great number of our aged lead happy, active lives—many successfully pursuing occupations of their choice. Under such labels as "Senior Citizens," "The Golden Age Group," and "The Aged," they now have become, unfortunately, the ingredients of a political brewing pot.

The Forand Bill, the government's political solution to this social problem, is dormant for the moment. But it is certain to receive increased Congressional support in 1960. Next year will bring a critical challenge to the private practice of medicine. If the doctors of Texas will give Blue Cross-Blue Shield's effort the consideration and support it deserves, many thousands more persons over 65 will have the health protection they need. Equally important, it is an excellent opportunity to strengthen the tenets of voluntary health insurance and the traditional American philosophy of free enterprise.

Associations Join Forces

The philosophy that almost any worthwhile result does not come easy has once again proved true.

At the suggestion of the American Thrift Association, officials of six professional associations in the state joined forces to lead a delegation to Washington last month. Their purpose was to inform Senator Johnson and Senator Yarborough of their keen interest in the Keogh-Simpson Bill (H.B. 10) and to solicit their earnest consideration and support. This proposed bill, presently pending before the Senate Finance Committee, embraces the principle of retirement tax equity for the 11,000,000 self-employed. The delegation which made the mission brought back a report of a warm and favorable reception from the senators.

Representatives from the following organizations made the mission to Washington: Texas Medical Association, Texas Dental Association, Texas Pharmaceutical Association, Texas Society of Architects, Texas Society of Professional Engineers, and the Texas Real Estate Association.

In addition to generating support for the Keogh-Simpson Bill, it is hoped that the Washington visit will precipitate even closer liaison and cooperation between professional associations and societies.

Southwestern Symposium

Our thanks to the University of Texas Southwestern Medical School for the 10 clinical reports appearing in the original article section of this issue. The first such series contributed by Southwestern, it was guest edited by Dr. John S. Chapman of Dallas.

The reports come from the fields of psychiatry, obstetrics and gynecology, pediatrics, urology, anesthesiology, pharmacology, surgery, and otolaryngology. Similar symposiums have been contributed in the past by Baylor University College of Medicine, Houston, and the University of Texas Medical Branch, Galveston.

President's Page

FREE MEDICAL CARE?

DR. YEAGER

There has been controversy in the state over medicine's stand on veterans' medical care. The furor is due either to a misunderstanding of medicine's stand, or to a group of socialist minded individuals trying to sabotage or stop the discussions.

Every doctor should be familiar with medicine's stand which is: (1) Any veteran with a service connected disability or illness should have the finest medical care including drugs and hospitalization at no expense whatever to the veteran; (2) any veteran who cannot afford private medical care should be cared for by the Veterans Administration provided no local facilities exist to treat his particular illness or injury; and (3) any other veterans with nonservice connected disabilities should be treated as any other good citizen.

In the clamor for governmental economy it should be known that the cost of the VA medical program is $724,000,000 for fiscal year 1959—about 1 per cent of the total national budget. It also is significant that VA costs represent approximately 2 per cent of the total income taxes collected in Texas annually. This can hardly be called free care.

The VA is treating some 116,000 patients per day, and approximately two-thirds of these are for nonservice connected disabilities.

One more point to remember is that there are now sufficient beds to care for all veterans with service connected disabilities. Any new beds constructed will be to care for nonservice connected disabilities.

I do not believe that any true American went to war in order to become a ward of the government.

F. W. Yeager, M.D.

ORIGINAL ARTICLES

Clinical Reports

A Symposium from The University of Texas Southwestern Medical School

Guest Editor:

JOHN S. CHAPMAN, M.D.

Dallas, Texas

Diagnosis and Management of Mild Depressive Reactions

ROBERT L. STUBBLEFIELD, M.D. and WILLIAM R. CONTE, M.D.

Dallas, Texas

IT WILL PROBABLY be helpful in this discussion of "mild depressive reactions" to begin with a few fundamental definitions. *Depression* is both a symptom and a diagnosis. By this we mean that almost every psychiatric disease entity contains some elements of depression. On the other hand, we have specific psychiatric disease entities to which we attach the diagnosis: "depression." Whether as symptoms or diagnoses, depressions vary considerably in intensity from one case to another and even from one time to another in a given patient. The less intense, or milder, symptoms of depression are often referred to as acute, superficial, or neurotic reactions. The severe, deep, or psychotic depressions are characterized by more dramatic and intense symptomatology and observable physiological signs.

In discussing this topic, we will proceed according to the following general outline: (1) some comments on the kinds of personalities which tend to become depressed and some thoughts concerning their background and life experience; (2) the symptomatology of depression as it is manifest on both an emotional and biological basis; (3) the dynamics of the depressive reactions; and (4) some specific comments about the management of these patients.

DEPRESSIVE PERSONALITY

Generally speaking, persons who are depressed (or who tend to become depressed) reveal a rather common psychological approach to life. They are individuals who take life seriously and seem to be removed from imagination and humor. They have rigid patterns of behavior, and when once established in a certain pattern, they are likely to pursue it intently and consistently. They work hard at what they do. Their activities may be relatively few in number, but they are extremely wrapped up in those which they do pursue. They are perfectionists and approach every problem with the feeling that it must be accomplished and must be accomplished correctly! For this reason they are sometimes described as "slaves" to their homes, their children, and their jobs. Usually they are so involved in doing things in their perfectionistic way that they have little time for hobbies or for recreation. Sometimes they are lacking in color, charm, and spontaneity. Usually they are sensitive, shy, and seclusive; however, they often are respected because of their conscientiousness, their thoroughness, and their meticulous devotion to duty.

Dr. Robert L. Stubblefield and his co-author presented this paper at a postgraduate course in psychiatry November 4, 1958, at the University of Texas Southwestern Medical School, Dallas, where they are in the Department of Psychiatry.

Persons who tend to be depressed generally take life seriously, adhere to rigid patterns, and are perfectionists. Depressed persons are quiet, self-depreciatory, and melancholy and exhibit anorexia, insomnia, constipation, and general metabolic slow-down. Management calls for evaluation of severity of the depression, active treatment of biological components, and psychotherapeutic support and comfort.

The families of depressive patients also show some common characteristics. They are families which are socially insecure and, at the same time, have intense strivings for social prestige, economic success, or similar goals. The children (future depressive individuals) are used in some way to solve the family need. Love is offered or withheld, depending on the families' needs, which are predominantly unconscious. Failure is common because of the unrealistic standards set by parents.

Usually the families are harsh disciplinarians, strict and rigid, uncompromising and punishing in their attitude. Thus, their children tend to acquire by imitation and also by identification (the superimposition of the personality of the parents) the same uncompromising, rigid, compulsive way of life.

SYMPTOMATOLOGY

The symptomatology of depression must be divided into two main categories. These are (1) emotional or psychological symptoms and (2) biological symptoms. Careful examination of the patient will reveal some admixture of these groups of symptoms in almost all cases of depression.

Patients who are depressed, or who are inclined to become depressed, are often quiet and restrained, somewhat pessimistic, and self-depreciatory. As indicated earlier, they lack spontaneity and enthusiasm. They are much inclined to complain of lassitude, feelings of inadequacy, discouragement, and hopelessness. They find it difficult to make decisions and experience trouble in dealing with problems that otherwise would not concern them. They tend to be unshakably concerned over their own personal problems, which they see with varying levels of insight. They feel rejected and unloved, complain of being melancholy.

The melancholy mood is one characterized by feelings of dejection, defeat, and hopelessness. It is often accompanied by an inability to enjoy or be interested in anything. Thoughts seem to come slowly and concentration is difficult. Sometimes there are ideas of poverty, sin, or delusions of disease. A state of tension often exists in these persons because there is a rather persistent fear of impending doom. Sometimes this tension looms into an acute anxiety reaction, in which case we describe the condition as an "agitated depression." Sometimes the melancholy mood is accompanied by suicidal ideas.

The changes in bodily function which occur in depressions are unlimited; however, we shall consider a few of the more common, such as anorexia, insomnia, changes in gastrointestinal activity, changes in basal metabolism. Currently, some of our ideas, observations, and theories about depression can be described as follows: The hypothalamus is the cephalic representation of the autonomic nervous system. It is connected with the cortex indirectly through the thalamus, and is connected directly with the peripheral autonomic nervous system at its lower centers by afferent and efferent fibers.

By virtue of its position and connections, the hypothalamus integrates the activities of the viscera, the endocrine glands and smooth muscles, and emotional expressions with reference to the needs of the entire organism. Such regulation and integration maintain what Cannon refers to as homeostasis in the normally functioning person. When depression is recognized cortically, it may be expressed peripherally by way of the hypothalamic controls, that is, through the mutually synergistic action of the sympathetic and parasympathetic nervous systems. It is in the effort to maintain homeostasis that we observe changes in bodily functions.

Two cardinal physical symptoms of depressive reaction are anorexia and insomnia. The history of sleeplessness or loss of appetite, or both, is often said to have been the first indication of an impending depression. The depressed patient has little inclination to eat and usually takes nourishment with reluctance and after much persuasion. In spite of the great need for sleep, sleep habits are grossly altered. The patient often awakens early in the morning and lies for hours, sleepless, tormented by painful ideas, only to complain the next morning of being dazed, worn out, and weary. Sometimes the patient will remain in bed for hours or days at a time and still complain of not being refreshed. It is generally agreed that depressive patients are distracted by the content of their thinking and cannot sleep. By the same token, the patient may feel himself so unworthy that he does not consider himself entitled to food offered him. He either refuses food or states that he has no appetite for it.

As a consequence of anorexia and insomnia, the body weight diminishes. There is a marked decrease in body weight early in depressions, becoming stabilized at a level well below the usual body weight as the depression becomes protracted. An increase in body weight and the return of interest in food are frequently early signs of improved mood.

Other frequent early physiological changes in depression are a slowing of the pulse and respiratory rate, lowering of the basal temperature by one or two degrees, a cessation of or irregularity of the menses, and certain "nervous disorders," such as headache, fatigue, and tinnitus. Some authors have noted an increase in the number of red corpuscles, inhibited excretion of uric acid, and glycosuria. All of the

changes indicate that in the depressed state a disordered metabolism must occur.

Various investigators have pointed to the consistently low basal metabolism found in psychoses in general and in depressive reactions in particular. Other investigators have reported mild to moderate hypertension or slowing of the pulse in depressed patients.

Another important phenomenon in depressive reactions is that of changes in the gastrointestinal function, seen particularly in gastric secretion, tone, and motility of the bowel. It appears that the depressive emotion exerts an inhibiting effect on the gastric secretion with a resulting anacidity. This probably is not symptomatic in itself, but may play a part in the over-all digestive problem of the patient. Perhaps the indifference, the preoccupation, and neglect of bodily sensation so characteristic of the depressive patient initiates a vicious cycle, namely: faulty mastication, insufficient food and water intake, constipation and stasis, and secretory disturbance.

Depressive reactions are likewise associated with hypotonicity and hypomotility in the gastrointestinal tract. Roentgenograms and fluoroscopic studies in these cases reveal large dilated bowels which are slowly moving. Barium retention for more than 5 hours has been observed in as high as 68 per cent of depressive cases.

DYNAMICS

Now for some comments on the dynamics of the depressive reaction. As we have pointed out, we believe that the psychological background for depression (that is, the "setting of the stage") occurs early in the development of the personality. We would like to illustrate what we mean here by two examples, both of which reflect the basic problem in depression.

The young child, both physically and emotionally dependent on his mother, expects her to be always in attendance to help satisfy his needs. It is, of course, physically impossible for her to be present at every moment. Her announced absence will produce anxiety in the child. An unannounced absence will be even more threatening, particularly if he has had no reassurance of her eventual return. To lose this source of security leads to anxiety, and such a frustration is always accompanied by anger and feelings of helplessness.

A similar situation is seen in the family which places high expectations in their children. This is the family which is described as characteristic of the families of depressive individuals. The children in these families who do not succeed or meet their families' expectation then feel partially rejected and experience a withholding or loss of love from the family. Again, this results in anxiety and anger.

Guilt is another important factor in depression. In the past we have felt that the conscience and subsequent feelings of guilt were developed after the child had established some identification with the parent of the same sex at age 3 or 4 years. However, we have come to look on relationships much earlier in the life of the child as being important in the establishment of the conscience. Certainly the mother, through her expectations and limitations, impresses the child with her concept of what is permissible and good. What is not acceptable to mother is not good. To be angry with mother, to depend on her, and at the same time to fear losing her love is a complicated guilt-producing situation.

In persons who have experienced this set of circumstances there is a sort of psychological preparation for depression. To lose in interpersonal relationships later in life or to lose loved ones, health, money, or even to experience a fantasied or threatened loss, is to become reacquainted with the initial loss of love in early childhood. The real or imagined stress situation in the present produces the same complex psychophysiological response of the past.

Thus, to lose anything which is held dear is to be scared and angry. Since the person's basic personality pattern is one of compulsive, rigid control over his feelings, he is unable to express his angry feelings outwardly. Consequently, these feelings are absorbed or introjected in the personality. When these feelings of hostility are directed toward this individual, he is, in effect, angry with himself instead of being angry toward the world around him. When he is angry with himself and depreciates himself, he sees little hope in the future. This is depression.

MANAGEMENT

The management of depressive reactions presents some problems which require careful consideration. It would be easy for the nonpsychiatric physician if he could simply refer his depressed patients to a psychiatrist. This, however, is not only impossible; it is impractical and would not necessarily serve the best interests of the patient.

Management of the depressive patient in the office of the family physician is a matter which logically can be divided into three distinct categories: (1) the evaluation of severity of intensity of depression; (2) the medical management; (3) psychotherapeutic assistance. A few comments about these three points are indicated.

Depressions are common; however, the multiplicity and the diversity of the symptomatology often confuse the issue. We believe depression should be suspected when we find one or more of the following conditions:

a. Sleep irregularities, particularly early morning awakening, and vague physical complaints such as "pressure in the neck" or headache.

b. An attitude of pessimism or discouragement.

c. A generalized psychomotor inhibition such as decreased motility, poor concentration, or slowness of thought.

It is often difficult to decide about the depths (intensity) of a depression. Perhaps it may be of some comfort to know that relatively few mild depressive reactions result in bodily harm or suicide. Suicide more frequently occurs in severe or psychotic depressions, which are often accompanied by anxiety and numerous somatic delusions. It is our opinion that if a patient appears to be depressed enough to hurt himself, or if he verbalizes this intent, in all probability psychiatric consultation is in order. If it is not available, probably hospitalization should be recommended to protect the patient.

A depressive patient should be given a careful physical examination and any specific medical problems—including those that are manifestations of the biological components of depression—should be treated actively by the doctor in the same fashion that he would treat any other patient who experienced these problems.

There is a continuing deluge of new drugs on the market that are said to be indicated for depressive emotional reactions. Caution must be used, however, in the long term administration of the energizers or tranquilizers, for some are depressive in themselves. We have found it helpful to treat mild depressive reaction with some mild stimulants, at least for a short period of time, and for the specific purpose of helping that patient feel a little more comfortable in talking to us about some of his problems. The drugs should not be used as a substitute for adequate clinical evaluation of the patient and his environment.

Psychotherapeutically, one should approach the depressed patient with interest, supporting and comforting remarks, aimed at an understanding of why he is depressed. Basically, the physician should remember that the depressed patient is struggling with a hostile problem and profound feelings of loss and isolation. If the doctor feels himself emotionally strong enough to face this kind of a problem and feels that the patient's past personality adjustment is satisfactory, he may elect to work with the patient through interviewing.

In the psychotherapeutic situation the doctor has the responsibility of learning as much as he can about his patient. This knowledge must be shared judiciously with the patient, as the patient develops his own curiosity about the motivations in his behavior. The patient's feelings, his attitudes, his relationships at home, and, of course, his relationships in the original family setting are extremely important. Any current depressing situations in his life, such as financial reverses, job changes, loss of loved ones, separation from loved ones, or change of life are factors that should be evaluated carefully and the patient given as much support as possible.

In many patients suffering from depression, the hostile problems and the problems of his personal loss are never dealt with by direct discussion. The patient is merely supported by a warm, understanding physician. On the other hand, the family physician can and should deal with the angry feelings when these hostile expressions come forth. If the therapist can approach his patient in a strong understanding and supporting manner, he has the opportunity to treat those basic psychological problems from which the depression has come.

Psychotherapy has three phases—evaluation, treatment, termination. The doctor's role begins as a parent-like figure who protects and limits the stresses on the patient. Ideally, as treatment progresses through increased participation by the patient, the doctor becomes a counselor and the patient is permitted, encouraged, and expected to assume a more and more mature role in the therapy. At some point the patient may reach the "moment of decision," in which he declines to explore further the deeper connections and memories about hostile feelings toward present or past significant figures in his life. Here the doctor must accept the patient's decision and plan termination of the interviews, usually well in advance with depressed patients, in order to minimize their feelings of abandonment.

The physician who will take the time to listen often will find that feelings of guilt, anger, and isolation will be admitted and partially resolved by these admissions. The physician who can help his patient see how his attitudes have developed and support him in his acceptance of them is a psychotherapist.

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Ectopic Pregnancy

15 Years' Experience at Parkland Memorial Hospital

RICHARD A. SPARR, M.D.

Dallas, Texas

ECTOPIC PREGNANCY is probably the most dramatic of all gynecologic catastrophes. In few disease processes with which a gynecologist deals can the prompt establishment of the diagnosis and the rapid institution of proper therapy be so well rewarded. However, in few other situations are the errors of diagnosis and mismanagement so severely penalized.

ILLUSTRATIVE CASES

Two cases seen at Parkland Memorial Hospital, Dallas, are presented.

CASE 1.—E. G., a 31 year old Negro woman, was admitted to the emergency room at 4:45 a. m. on March 8 with a history of epigastric pain of 6 hours' duration. The last menstrual period was said to have occurred 3 weeks prior to admission. No other history could be obtained. Physical examination revealed a blood pressure of 96/68, a pulse rate of 102 per minute, and a temperature of 98.8 F. The abdominal examination revealed shifting dullness, and pelvic examination showed bulging of the cul-de-sac with exquisite adnexal tenderness.

Culdocentesis was done at 9 a. m. and old blood was aspirated. Administration of Ringer's lactate solution was started 45 minutes later. The hemoglobin was reported as 9.2 Gm. At 12:15 p. m., anesthesia was begun and at 12:25 transfusion of the first of 3 pints of blood was begun. At this time no pulse or blood pressure was obtained. An abdominal incision was made, and 2,700 ml. of blood noted in the peritoneal cavity. A right ruptured ectopic pregnancy was found. Interarterial blood transfusion, 1,000 ml., was attempted at 1 p. m. The patient was pronounced dead at 1:20.

CASE 2.—J. E., a 32 year old Negro, gravida IV, para I, aborted III, was admitted on March 5 with the chief complaints of sudden severe pain in the left lower quadrant of the abdomen of a few hours' duration accompanied by syncope. Her last normal menstrual period had been 9 weeks prior to admission. She had been seen 1 week previously in the Gynecology Clinic where a diagnosis of pelvic inflammatory disease was made and penicillin given.

Physical examination on admission showed the patient to be in shock. Ringer's lactate solution and blood were ordered. Examination of the abdomen revealed a tender left lower quadrant mass. On pelvic examination the uterus was twice normal size and a mushy tender mass was noted in the left adnexa.

Laparotomy followed immediately, and a hemoperitoneum with 2,000 cc. of blood and a bleeding left ectopic pregnancy were found. A left salpingo-oophorectomy was done. Hemostasis seemed complete. During surgery the patient received 1,000 ml. of whole blood.

Postoperatively progressive accumulation of blood was noted within the peritoneal cavity; bleeding was noted from the skin incision. Blood pressure was maintained through the remaining 11 hours of the patient's life with 15 pints of blood. Blood pressure became unobtainable and the patient died 11½ hours postoperatively.

At postmortem examination no major vessels were unligated and all findings were consistent with massive bleeding due to major defects in the blood coagulation mechanism resulting from transfusions of incompatible blood.

Case 1 illustrates well the disastrous consequence of "too little, too late." Case 2 demonstrates the danger of failing to suspect the presence of an ectopic pregnancy, but even more important, the very real hazard of multiple whole blood transfusions.

REPORTS OF EXPERIENCE

In 1952 Bates and Nabors[1] reported the experience at Parkland Memorial Hospital from January 1, 1944, to June 30, 1951. This included 107 cases of proven ectopic gestations.

More recently a report by Kline and Clahr[2] emphasized that while maternal mortality has decreased, deaths due to ectopic pregnancy have actually increased in the New York area. These authors further pointed out that 80 per cent of these deaths occurred either in the home or on the way to the hospital.

Maternal deaths due to hemorrhage have decreased. This decrease has been the result in large part of the availability of whole blood for transfusion. However, it is now obvious that whole blood replacement in itself may carry a significant hazard to the recipient.[3]

A study of our experiences at Parkland Memorial Hospital from July 1, 1951, to December 31, 1958, has been carried out. This report included 253 pa-

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Symptoms, physical examinations, diagnostic procedures, management, and operative findings in 365 ectopic pregnancies with a comparison of 150 patients thought to have ectopic pregnancies but proving to be nonectopic are presented. Ectopic pregnancy should be considered and proper diagnostic and therapeutic measures instituted if called for in cases of menstrual aberration with associated pain.

tients who had 258 proven ectopic pregnancies. The previous report of Bates and Nabors from this institution has been incorporated to present a combined series of 15 years' experience with 365 ectopic pregnancies.

PATIENT MATERIAL

During the 15 years covered by this report there has been 1 ectopic pregnancy for every 123 deliveries. The average age of the 365 patients was 27.3 years. Prior to the reported ectopic gestation the average gravidity was 2.7 and the average parity was 2.2. Fifteen per cent of the women were nulligravida. The highest gravidity was 13 and the highest parity (in 3 women) was 8.

The patients who receive care at Parkland Memorial Hospital are for the large part indigent residents of Dallas County. The patients admitted to gynecology-obstetric service are approximately 80 per cent Negro and 20 per cent white. In the combined series of 365 ectopic pregnancies, 80 per cent of the patients were Negro and 20 per cent were white, discounting the previously suggested racial predilection. Ninety-five per cent of these patients are charity patients whose care and management is the direct responsibility of the resident staff under the supervision of full time faculty members of Southwestern Medical School of the University of Texas.

SYMPTOMS

Figure 1 relates the frequency of the four most commonly noted symptoms.

In the last 7½ years pain was present in 98 per cent of the cases. The average duration of this pain was 5 days, and in 50 per cent it had been present for less than 24 hours. In the other patients a distinct change in the intensity or location of the pain caused the patient to seek medical aid.

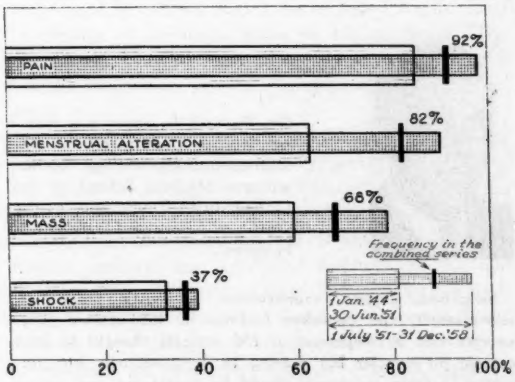

Fig. 1. Signs and symptoms in 365 extra-uterine gestations.

In the latter series 87 per cent of women noted some abnormality of menstrual flow. The average interval since the last normal menstrual period until definitive surgery was undertaken was 7.8 weeks. Fifteen women denied menstrual alteration, and 15 women were within 3 weeks of their last normal menstrual period. Vaginal bleeding had been noted by 48 per cent of the women for 14 days prior to admission. The amount of bleeding was usually scanty to minimal in amount, and in only 2 cases was the vaginal bleeding felt to be enough to account for the shocklike picture.

A mass was noted in 68 per cent of the patients; however, exquisite pelvic tenderness was a better indication of pelvic disease than the presence of a mass.

Shock as manifested by hypotension, tachycardia, decrease in peripheral venous filling, and clammy skin was present in 37 per cent of the cases. Many patients with normal vital signs while recumbent were found to have significant tachycardia and hypotension on sitting or standing. It is important therefore in a patient in whom blood loss is suspected to check vital signs in both positions lest a false impression of the cardiovascular status be obtained.

Many factors have been listed as presumed etiological agents in the production of ectopic pregnancy. In the last 7½ years 25 per cent of the patients seen were thought to have a history of disease which could have been an etiological factor. These are listed in table 1.

TABLE 1.—*Significant Past History in Ectopic Pregnancy.*

Condition	No. of Patients
Pelvic inflammatory disease	60
Previous ectopic pregnancy	14
Salpingectomy for other than ectopic	4
Pulmonary tuberculosis (pneumoperitoneum)	3
Tubal ligation	1
Miscellaneous	6
	88

The incidence of pelvic inflammatory disease in Parkland patients is probably significantly greater than is indicated in these statistics. Unfortunately the status of the opposite tube was not always mentioned in the operative report. Peritonitis subsequent to a ruptured appendix, septic abortion, and puerperal sepsis are included among the miscellaneous group.

Of the 14 patients with a second ectopic pregnancy 1 patient had 2 within 7 months and 5 patients had 2 ectopic pregnancies within a year.

PHYSICAL EXAMINATION

Coupled with a high degree of suspicion on the part of the physician, the history frequently provides enough evidence to explore further the possibility of ectopic pregnancy. While many times the physical examination provides evidence of an intra-abdominal catastrophe, this evidence is frequently lacking. In the unruptured group of ectopics, findings, while never absent, may be so equivocal as to be misleading. The physical examinations of the last 258 ectopic gestations have been reviewed in detail and the findings are presented.

The average admitting temperature was 99 F. with a range of 95.6 to 102.8 F. Nine per cent of the patients had a temperature greater than 100 F!

Seventy-seven per cent of the patients were noted to have abnormal findings on abdominal examination. The usual findings included tenderness which ranged from slight to extreme with a variable degree of guarding. Spasm and rebound tenderness were also present. Distention of the abdomen was another frequently encountered finding. "Boardlike" rigidity was noted in only 5 instances. Shifting dullness was noted in many cases without being confirmed by significant free fluid at laparotomy. Ileus, obesity, or both most frequently led to this erroneous impression. In no instance was Cullen's sign noted.

The size of the uterus was recorded in 91 patients. It was described as being normal size in 28 per cent but was enlarged up to 2 times normal size in the remainder. In a few patients uterine myomas caused even greater enlargement.

The cervix usually was described as softened and bluish. Tenderness to motion of the cervix is present in too many other pelvic diseases to be of differential value. Dilatation of the cervical os was present when a decidual cast had passed and in 2 instances when an attempted abortion had been performed.

The presence of a firm grayish white cylinder of tissue extruding from the cervix, the decidual cast, was a source of significant confusion. The incorrect diagnosis of incomplete abortion caused near fatal delay in the institution of proper therapy in 2 of these cases. More recently, the recognition by the staff that the passage of a decidual cast not infrequently accompanies rupture of an ectopic gestation has led to the diagnosis of this condition when many of the usual signs were lacking.

In 80 per cent of patients, pelvic tenderness was classified as moderate to extreme. The palpation of a pelvic mass was described in 79 per cent of the last 258 patients seen with ectopic pregnancy. The mass varied in description from bulging of the cul-de-sac to a discrete acutely tender mass in one adnexa. In 16 per cent of the series where a mass had been palpated, the ectopic pregnancy was found on the opposite side. It has been extremely unusual that palpation of the ectopic gestational sac was not exquisitely painful to the patient.

DIAGNOSTIC PROCEDURES

The failure of prompt hemodilution during a period of acute blood loss renders the initial determination of hemoglobin and hematocrit of lessened significance.

As shown in figure 2, there is a fall in mean hemoglobin concentration as blood loss increases. However, in the individual patient the hemoglobin concentration may be near normal in spite of rapid intraperitoneal hemorrhage. Figure 2 relates the hemoglobin concentration and white blood cell count to the amount of blood recovered from the peritoneal cavity.

Pregnancy tests were performed on 10 per cent of the cases, usually in an attempt to differentiate pelvic inflammatory disease from pregnancy. Twenty-three such tests were positive and 4 were negative. It is important to realize that the pregnancy test may be positive whenever and wherever functioning placental tissue is present. A negative test may be associated with tubal abortion or inadequate production of the hormone as in very early pregnancy. Culdocentesis was performed in 63 per cent of our patients. The test is usually done in the emergency room employing 25 to 50 mg. of Demerol intravenously as an analgesic. The patient is placed in the lithotomy position, and the vagina is prepared

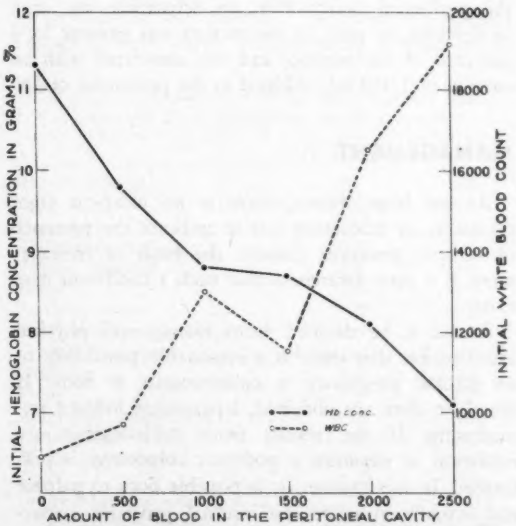

Fig. 2. Relationship of hemoglobin concentration and white blood cell count to the amount of blood in the peritoneal cavity in cases of ectopic pregnancy.

with an antiseptic solution. The cervix is steadied with a tenaculum and a ¾ inch, 16 gauge needle is inserted beneath the reflection of the vaginal mucosa onto the cervix into the peritoneal cavity. Aspiration will demonstrate the free flow of nonclotting blood or blood with old clots in it as a positive test. The absence of fluid does not exclude intraperitoneal hemorrhage, for in 5 per cent of the cases a "negative" test was obtained where further exploration demonstrated as much as 1,500 ml. of blood in the peritoneal cavity. As already mentioned, the hemoglobin concentration and the degree of cardiovascular collapse may be of inconstant reliability with regard to the prediction of the amount of blood in the peritoneal cavity.

In 191 cases in which the amount of blood found in the peritoneal cavity was recorded, the average present was 1,200 ml. More than one-third of the patients in this group had normal vital signs.

Occasionally patients are seen in whom the possibility of ectopic pregnancy exists but is so remote as not to warrant operative investigation. In this group it is vital that periodic checks be made to note the development of an adnexal mass or increased pain. These patients also should be instructed to report immediately the occurrence of shoulder or rectal pain and syncope.

In this series shoulder pain was present in 9 per cent of the patients and was associated with the recovery of an average of 1,550 ml. of blood from the peritoneal cavity. Syncope, without associated shock present in 7 per cent of the patients, was associated with an average of 1,540 ml. recovered from the peritoneal cavity. Pain on defecation, the urge to defecate, or pain in the rectum was present in 4 per cent of the patients and was associated with an average of 1,050 ml. of blood in the peritoneal cavity.

MANAGEMENT

As has been shown, there is no clear-cut sign, symptom, or laboratory test to indicate the presence of ectopic gestation. Clearly, the basis of management is a keen awareness that such a condition may exist.

Should it be deemed from history and physical examination that there is a reasonable possibility of an ectopic pregnancy, a culdocentesis is done. If blood or clots are obtained, laparotomy follows immediately. If the results from culdocentesis are equivocal or negative, a posterior colpotomy is performed. In this manner, it is possible both to palpate and actually visualize the internal genitalia. Laparotomy follows as indicated by the findings on colpotomy. For the technique of colpotomy the reader is referred to Smith and Norton.[4]

The patient with obvious shock and a ruptured ectopic pregnancy is started immediately on intravenous fluids, usually Ringer's lactate solution, while whole blood is being readied. If the blood pressure and pulse promptly return to normal before blood is begun, transfusion is withheld pending the findings at laparotomy. If hypotension persists, blood is started under pressure and laparotomy is begun. There is no point in delaying surgery if a suitable blood pressure response is not promptly obtained. In this circumstance blood loss is proceeding more rapidly than is its replacement and eventual exsanguination will result.

In those communities lacking adequate blood bank facilities autotransfusion may be employed. The free blood in the peritoneal cavity is collected aseptically and poured through a gauze filter into a suitable sterile container containing acid-citrate-dextrose solution. The blood is then given intravenously. Obviously contaminated blood is unsuitable for this method.

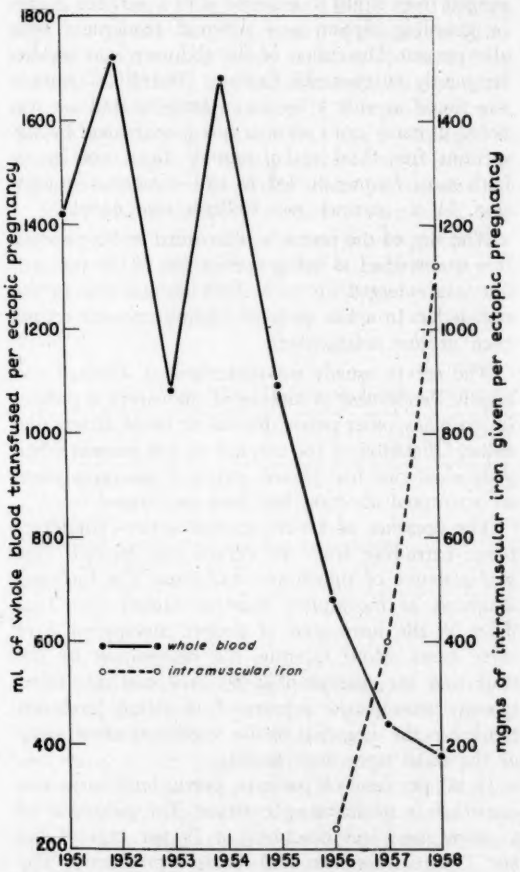

Fig. 3. Comparison of whole blood and intramuscular iron in treatment of ectopic pregnancy during the years 1951 to 1958.

This technique has been used successfully on 4 occasions in this series.

The use of whole blood has been drastically reduced as is pictured in figure 3. Blood is now used specifically to combat shock rather than to achieve a particular hemoglobin concentration. If following surgery ambulation does not produce syncope, blood transfusions are withheld irrespective of hemoglobin values. Parenteral iron therapy has seemed to be a satisfactory agent to rebuild iron stores once shock has been corrected.

OPERATIVE FINDINGS

The locations of the primary sites of implantation are recorded on figure 4. The site of the ectopic pregnancy with resultant rupture and tissue destruction dictated the operative procedures in most instances. These procedures are listed in table 2.

Often removal of the ipsilateral ovary seemed indicated by its involvement in the ectopic mass. To conserve this ovary would have resulted in the embarrassment of its vascular supply. Hysterectomy was elected in cases of cornual or interstitial pregnancies. It was also employed in cases where the opposite adnexa was diseased or absent. Two cases of carcinoma in situ of the cervix have been found in the hysterectomy specimens.

Salpingostomy, the removal of the gestational sac with repair of the tube, done to preserve childbearing function, has been employed on 4 occasions.

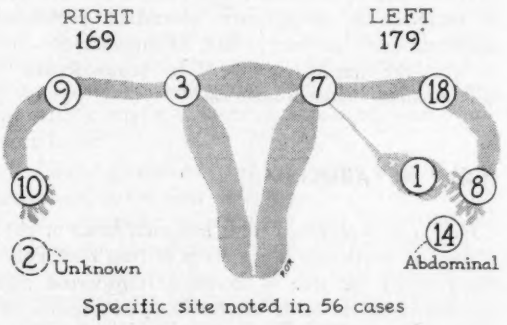

Fig. 4. Location of ectopic pregnancies.

TABLE 2.—*Operative Procedures Performed for Ectopic Pregnancy July 1, 1951, to December 30, 1958.*

Procedure	No.
Salpingectomy	123
Salpingectomy-oophorectomy	65
Hysterectomy and unilateral salpingo-oophorectomy	26
Hysterectomy and bilateral salpingo-oophorectomy	16
Hysterectomy, bilateral salpingectomy, and unilateral oophorectomy	9
Salpingectomy and salpingoplasty	6
Salpingostomy	4
Subtotal hysterectomy	3
Other procedures	6
	258

MORTALITY

In this series of 365 ectopic pregnancies there have been 4 deaths, a mortality rate of 1.1 per cent. Two hundred seventy-four ectopic pregnancies since 1952 have been treated without a death.

"NONECTOPIC"

During the last 7½ years there have been approximately 150 diagnostic procedures done on patients in whom the admitting diagnosis was ectopic pregnancy. In the hope that there may have been some significant point of history or physical examination to aid in the differential diagnosis one-half of these charts were reviewed.

Listed in table 3 is a comparison of findings in this "nonectopic" group and the ectopic pregnancies in a similar period.

In the "nonectopic" group pelvic inflammation was believed to account for the symptoms in 38 per cent of the patients, uterine pregnancy in 24 per cent, and ovarian cysts in 23 per cent.

In the ectopic group the diagnosis of ectopic pregnancy was either missed or a secondary diagnosis in 17 per cent of the patients. The erroneous primary diagnoses were pelvic inflammatory disease in 52

TABLE 3.—*Comparison of Ectopic Pregnancy and Nonectopic Cases Simulating Ectopic Pregnancy.*

	Nonectopic	Ectopic
No. of patients	74	264
Pain	93%	98%
Mass	43%	79%
Abdominal findings	82%	77%
Vaginal bleeding	35%	48%
Shock	0%	39%
Previous ectopic	11%	6%
Last normal menstrual period prior to surgery	8.0 wk. before	7.8 wk. before
Gravidity	3.0	2.8
Parity	2.2	2.2
Admission temperature	99 F.	99 F.
Hemoglobin	11.2 Gm.	11.3 Gm.*
White blood count	9,160	8,900*
Age	25 yr.	27 yr.
Interval between admission to hospital and surgery	1.5 days	0.5 days

*The hemoglobin and white blood count are reported for patients with ectopic pregnancies in whom less than 500 ml. of blood was found in the peritoneal cavity.

per cent; abortion, threatened, or incomplete in 19 per cent; and no diagnosis in 8 per cent. Fibroids, dysmenorrhea, and ovarian cyst were also among the erroneous diagnoses.

The single most serious and frequent error in diagnosis was ascribing the symptoms of ectopic pregnancy to pelvic inflammatory disease in patients who were afebrile. Penicillin therapy was often prescribed. In only 3 of this group of patients were the classic symptoms of ectopic pregnancy missing.

SUMMARY AND CONCLUSIONS

A review of our experience at Parkland Memorial Hospital has been presented with an analysis of 365 cases of proven ectopic pregnancies. The findings in this group were compared to the "nonectopic" group. It is apparent from this review that there is no single test or symptom or even group of symptoms which leads infallibly to the correct diagnosis of ectopic pregnancy.

Further, it has been shown that accurate diagnosis may be extremely difficult in the patient who does not have a significant intraperitoneal hemorrhage.

The restoration of normal cardiovascular dynamics is the present aim of whole blood transfusion. In the face of hazards inherent in multiple whole blood transfusions, parenteral iron therapy seems the safer agent to replace iron loss once shock has been corrected.

Therefore, in the patient in whom there is a reasonable possibility of ectopic pregnancy, full investigation of the status of the pelvis should be accomplished in the manner outlined.

In the menstruating woman with menstrual aberration, pregnancy as the cause should be considered first. If there is associated pain, ectopic pregnancy must be ruled out.

Finally, and most important, the diagnosis of ectopic pregnancy will be made only if physicians caring for women remain alert to its possibility and, when the reasonable possibility of ectopic pregnancy exists, the proper diagnostic and therapeutic measures are instituted.

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Iron Deficiency Anemia of Infancy

Management, with Clinical Evaluation of Imferon

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IRON DEFICIENCY anemia is the most common nutritional anemia in the United States. Among infants it reaches its highest peak between the ages of 6 months and 3 years.[6, 8, 13]

Although the introduction of an iron dextran (a very well tolerated intramuscular iron preparation) in many instances has simplified the treatment of iron deficiency anemia, there has been increased concern over the possible misuse of this drug in the therapy of anemias which are not due to simple nutritional inadequacies.[16]

This concern results from the ease of administration and lack of immediate side effects. Because iron is excreted in insignificant quantities, prolonged treatment with parenteral iron of anemias not due to iron deficiencies may lead to hemosiderosis[1, 4] and possibly hemochromatosis.[17]

IRON METABOLISM

Oral iron is obtained from iron rich foods or prescribed by physicians in the form of iron salts. From either source the iron is absorbed, transported, and distributed by the same mechanisms. Absorption by

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Iron deficiency is the most common nutritional anemia and reaches its peak in infants from 6 months to 3 years. Imferon is a safe, effective, well tolerated parenteral iron preparation with no side effects, provided the diagnosis of iron deficiency is correct. It should be reserved, however, for cases in which oral iron is not satisfactory.

the cells is completed primarily in the duodenum by a protein, apoferritin, which combines with ferrous iron to form ferritin. Then ferritin transfers the iron to a plasma beta globulin, which transports the iron throughout the body. The resultant combination, known as transferrin, is distributed to the blood-forming organs for the production of hemoglobin or is converted from transferrin back to ferritin to be stored as ferritin or hemosiderin.[5] Figure 1 outlines the metabolism of iron.

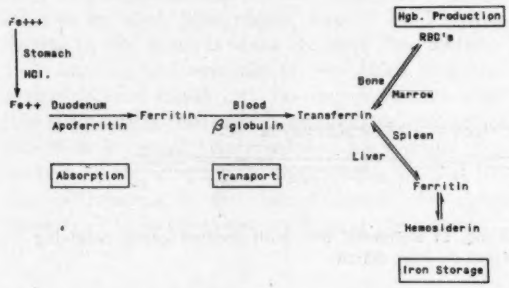

Fig. 1. Diagram showing the metabolism of iron.

PATHOPHYSIOLOGY

Various factors contribute to the development of iron deficiency anemia in infants. The iron stores of the mother are reflected in the newborn infant. It is common knowledge that premature babies begin life with a smaller amount of iron stores than a full term infant.

In both prematures and full term infants it is important, at the time of delivery, to allow as much blood as possible to reach the baby by letting the cord pulsate and then stripping it. This process will give the infant on the average an additional 40 mg. of elemental iron for each 60 cc. of blood received.[15]

Since myoglobin mass in the muscles takes precedence over hemoglobin mass in the red blood corpuscles, muscle tissues are formed at the expense of hemoglobin content. The average infant, whose birth weight triples in 1 year, triples both his blood volume and his myoglobin mass during the same period. Although the iron requirements of the rest of the body are small, they are met at the expense of hemoglobin iron. Three factors, then, contribute to development of iron deficiency anemia: iron stores, growth, and diet.[7]

Iron deficiency can develop in rapidly growing infants despite an apparently adequate diet.[6] This is possible because (despite the presence of iron deficient states) approximately only 10 per cent of the iron present in food can be absorbed.[11, 12] Variable results, as high as 80 per cent, have been obtained by the ingestion of iron salts.[10]

DIAGNOSIS

One of the most rapid periods of an infant's growth is between 6 months and 3 years of age, and the dietary pattern during this period should have changed from predominantly milk to solid foods. This span between 6 months and 3 years is the time when iron deficiency is most likely to occur. A diagnosis of iron deficiency anemia should not be made outside of this period without a history of prematurity, an excessive amount of blood lost during the perinatal period, or blood loss from the gastrointestinal tract. If these factors are not present, a thorough investigation as to the etiology of the anemia should be performed.

It is often difficult to obtain a reliable dietary history of the infant. The salient question is the amount of milk, rather than meat, the child consumes daily. If the child drinks more than a quart of milk a day, it is probable that the caloric requirements have been filled and that the child has eaten very little solid foods.

Physical examination of an iron deficient infant shows only a pale, flabby, well developed child. Occasionally a spleen tip is palpated, a factor usually associated with frequent infections.

The diagnosis of iron deficiency anemia in the 6 month to 3 year group can be made by observing the hypochromic microcytic blood picture in the peripheral blood smear. This portrays the low hemoglobin content of the red blood cells. The diagnosis is confirmed by a 10 to 14 day therapeutic trial of oral iron therapy. This trial should result in a reticulocytosis and evidence of well filled polychromatophilic red blood cells on the peripheral slide. If the trial therapy does not show this response, the diagnosis of iron deficiency anemia must be questioned and a hematologist should be consulted.

TREATMENT

Since the parenteral iron compounds were either too toxic or too difficult to administer, iron deficiency in infancy, until the introduction of iron dextran, Imferon, was treated almost entirely by oral iron preparations. Numerous clinical studies with Imferon have shown it to be a safe, effective, well tolerated parenteral iron preparation with few side reactions.[2, 3, 9] The only side reaction observed in the Michigan studies of 77 patients was an exacerbation of eczema in 1 child after the second injection of Imferon. At Parkland Memorial Hospital in Dallas we have recently seen 2 infants develop sterile,

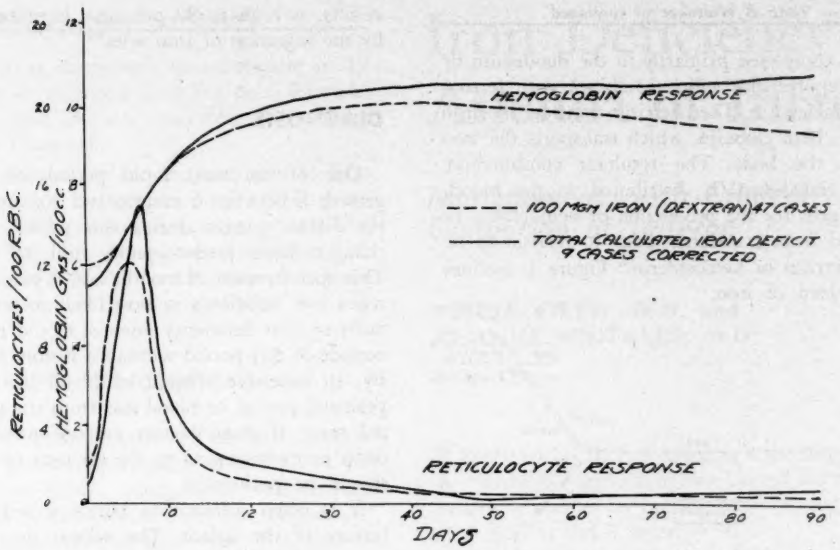

Fig. 2. Graph comparing a group of children receiving 100 mg. of elemental iron with another group receiving sufficient iron totally to correct an iron deficit.

draining abscesses after intramuscular injections. Slight staining of the buttocks was observed in some instances from leakage at the site of injection. Use of the "Z" tract technique with deep intramuscular injection should decrease these complications to a minimum.

At the Children's Hospital of Michigan we and our colleagues made an evaluation of the response to Imferon in children with hemoglobin levels ranging from 4 to 8 Gm. We observed that the *initial* response of hemoglobin rise was the same for those given 100 mg. of elemental iron and for those whose iron deficit to include iron stores were totally corrected (1.5 x wt. in lb. [15– x Hgb.] = mg. of elemental iron). Figure 2 shows a graph comparing these two groups of infants. The average maximum reticulocyte response was about 7 days for both groups, and at least 4 to 5 weeks were required for the attainment of a satisfactory hemoglobin level. One-third of these infants receiving only partial correction (100 mg. of iron) of their iron deficient deficit attained a hemoglobin of more than 10 Gm. in about 5 to 6 weeks. Through improved nutrition one-third did not become anemic again. In one-fourth of the group hemoglobin values increased transiently to above 10 Gm., but they again became anemic and required supplemental iron. The remainder, although they had a rapid response to intramuscular iron, received supplemental iron therapy. The patients in this series usually attained a level of 10 Gm. of hemoglobin in 5 to 6 weeks, regardless of whether they had started out with 4 or 8 Gm. of hemoglobin. Figure 3 shows the prompt hemoglobin and reticulocyte response to Imferon therapy in a child with a severe infection.

At the Texas Children's Hospital in Dallas we are studying the oral iron response in children with hemoglobin values between 4 and 8 Gm. The patients are given a ferrous salt containing 25 to 30 mg. of elemental iron 30 minutes before meals three times a day. Our results so far would indicate that

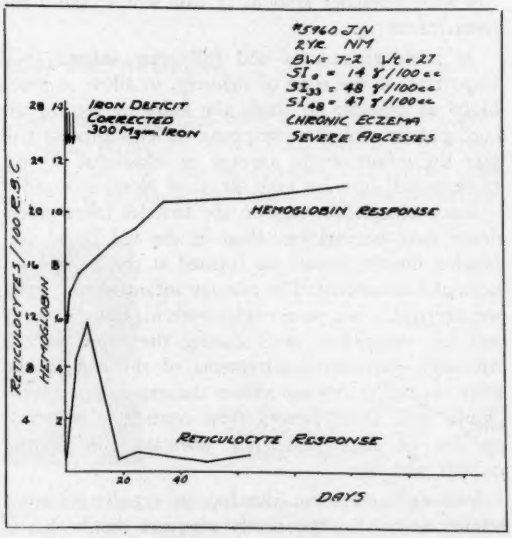

Fig. 3. Graph showing the prompt hemoglobin and reticulocyte response to Imferon therapy in a child with a severe infection.

the response to oral iron is as rapid and efficient as the response to intramuscular iron. To obtain the maximum hemoglobin response, oral therapy must be continued for at least 1 month. Several recent studies have claimed that iron stores are not replenished by the oral route alone.[14, 15]

Such other factors as parental ignorance, lack of cooperation, and intolerance to oral iron make Imferon of necessity the prescribed drug.

If these factors make the use of Imferon necessary, it is suggested that a trial therapy of 100 mg. of iron be used. The results, after 7 to 10 days, should be the same as those for oral iron therapy: reticulocytosis and evidence of well filled polychromatophilic red blood cells on the peripheral slide. The diagnosis is then confirmed and the iron deficit can then be totally corrected by the formula prescribed above. If there is no response to the 100 mg. of Imferon, further hematological work-up is imperative to ascertain the etiology of the anemia.

SUMMARY

Iron deficiency is the most common nutritional anemia and reaches its peak in infants from 6 months to 3 years. It has been shown that three factors contribute to this deficiency: iron stores, growth, and diet.

Imferon is a safe, effective, well tolerated parenteral iron preparation with negative side effects, provided the diagnosis of iron deficiency is the correct diagnosis. Since oral iron preparations, however, will correct the anemia in the majority of cases, Imferon should be reserved for cases where there are poor socio-economic conditions or intolerance to oral iron.

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Torsion of the Spermatic Cord

With Review of the Literature Of the Past 10 Years

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ALTHOUGH TORSION of the spermatic cord has often been discussed in the literature, the diagnosis continues to be missed frequently. Since the time when it was originally described in 1840 by Delasiauve[1] until 1950, some 500 cases have been reported in world literature. This represents a reported occurrence of approximately 5 per year, or an average of 50 cases for each 10 year period. In a review of the English and American literature during the past 10 years, 73 reported cases were found.[2-10] In this group, only 21 per cent were cases wherein the testicle was salvaged. An entity in which diagnostic accuracy is apparently so low certainly merits discussion.

The purpose, then, of this paper is to review the cause, symptoms, diagnosis, and treatment of torsion of the spermatic cord, hoping to encourage proper early diagnosis.

Following the first authenticated report of 1840, the next milestone is a classical report on this sub-

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ject in 1936 by Abeshouse,[11] who was able to find 350 cases in literature. After this, Ormond[12] presented an excellent discussion of this topic in 1938. This followed Prehn's monumental report[13] in 1934. These papers, and those of the many other authors referred to in this article, review the topic quite adequately. Here, only reemphasis of the subject, borrowing from these sources, will be made. It is of interest to note that although there has been a reemphasis of this topic in the literature throughout the years, the reported incidence for the 10 year period 1948 to 1958 is not markedly increased.

ETIOLOGY AND PATHOGENESIS

The over-all incidence of torsion of the testicle is much more frequent in the maldescended testis. Earlier papers stated that most cases were associated with maldescent, and this was an accurate observation. Such cases are almost indistinguishable from strangulation of an inguinal hernia. If a testicle lies in or near the inguinal canal, the patient will present with localized pain, sometimes referred to the abdomen, and/or tender, irreducible swelling in the groin; often there is vomiting. The final diagnosis is usually made upon proceeding with surgical exploration.

Torsion of the testicle is more common in the maldescended testis. Pain, swelling in the groin, and often vomiting are suggestive, but usually exploratory surgery is required for diagnosis. An intravaginal mesentery or extravaginal trauma may predispose to torsion. Surgical intervention within approximately 4 hours of onset of severe pain is necessary to salvage a twisted testicle.

It is agreed that in all examples of torsion of the fully descended testicle there is some anatomical abnormality. Here, it would be well to point out that early inspection of the genitalia shortly after birth is well worth while. Prior to the child developing a great deal of fatty tissue, the testicles are easily palpable and, if properly descended, will be felt in the scrotum. A short while after birth, as the patient develops some fat, the testicles may appear to be high in the inguinal canal. This is only apparent and not real; consequently a diagnosis of undescended or partially descended testicles may be made. The prognosis as to spermatogenesis and the possibility of future torsion can, of course, be varied by this impression.[14]

The well known predisposing anomalies are as follows:

1. The intravaginal epididymis.[15] In the normal testicle there is a wide, bare area behind the epididymis where the visceral layer of the tunica vaginalis is reflected to form a parietal layer, leaving only a small part of the epididymis in the vaginal sac. As Roch,[16] in 1928, pointed out, the normal relationship is similar to that of the ascending colon to the peritoneum; there is no mesentery. In the many cases of torsion there is, however, a mesentery. This intravaginal deformity is the most commonly occurring type. Here, the twisted cord is within the tunica vaginalis and involves the testis and epididymis but not the tunica. Ordinarily, the reflection of the parietal layer of the tunica over the epididymis forms a mesentery (mesorchium) running with the globus minor to about the middle of the globus major. In many cases this has been much shortened, including only the globus major and hence predisposing to torsion, which may follow slight muscular strain or effort and not necessarily require a great deal of force.

2. The extravaginal type. Here, the incidence is quite rare. This is usually associated with trauma, with incarcerated hernia, or as a result of direct trauma in cryptorchism. In the extravaginal torsion the twist occurs in the cord outside the tunica, and the whole testicular mass is involved. This is often caused by gross violence, though a strong contraction of the cremasteric muscle is said sometimes to cause it. Torsion of the spermatic cord never occurs in a normal testicle, for in the normal scrotum it is impossible to rotate the testicle to any great degree.[17-20] In the usual type of torsion of the spermatic cord, an abnormality, either developmental or acquired, exists. Roch described other causes and emphasized the anchoring effect of the entering blood vessels. The internal spermatic artery is attached not only to the upper pole but also by branches entering the whole posterior margin. These and the artery of the tail and body of the epididymis will counteract any tendency to rotate around the main pedicle (the internal spermatic artery).

What actually starts the twist seems to be unknown. In some cases there has been definite insult to the scrotum, but in some others the torsion has developed at rest, even while the patient is sleeping.

The first effect of rotation in torsion is flattening of the veins. Later, obliteration of the lumen of the artery occurs; the pain resulting is an ischemic type and the severity is at its height shortly after the occlusion of the vascular supply, reaching a crescendo only a few hours after this, then decreasing in degree as necrosis is effected.

SYMPTOMS AND SIGNS IN DIFFERENTIAL DIAGNOSIS

The incidence, as far as age groups are concerned, varies. Torsion has been reported in the first year of life as well as in elderly men. In a recent review by

Deming and Clark[21] in a study done in the United States Armed Forces, the average was 18½ years. There is no apparent predilection as to the right or left side.

Underhill, emphasizing the atypical case, quoted from "Comparison in Surgical Studies" by Ederburgh that, "The clinical picture of torsion of the testicle is characteristic. There is sudden pain, nausea, vomiting, swelling of the testicle, and usually a diffusion of the tunica vaginalis." Then, Underhill went on to state that of the cases he presented, none of these features were present. Pain, however, is a constant feature and is usually sudden in onset. Vomiting is often present. The pain is referred to the scrotum or the groin, according to the location of the testicle. It may be referred to the lower part of the abdomen. It may increase in intensity for a day or two and then gradually subside. When spontaneous reduction takes place, there is dramatic relief. There is an absence of any symptoms of the lower genitourinary tract.

The physical signs vary according to whether the testicle is fully descended or not. If the testicle is in the scrotum, the underlying skin on that side is red, edematous, and tender. The scrotal skin may be tethered to the underlying structures. This is described as Dillon's sign.[22] Extreme tenderness may make precise palpation very difficult. But even with the patient under anesthesia it is usually impossible to distinguish the epididymis from the body of the testicle. In the early stages the patient may be mildly shocked, with a subnormal temperature. More often there is pyrexia. If the testicle is undescended but lying at or near the extravaginal line, the external inguinal ring, the signs will closely resemble those of a strangulated hernia. Another reliable sign is Prehn's sign, where an elevation of the scrotal contents causes increase in severity of the pain and torsion of the cord, whereas in acute epididymitis a similar maneuver causes reduction of the amount of pain. In the undescended testicle this must be differentiated from acute appendicitis, epididymitis, or a strangulated hernia. In the completely descended testicle, differentiation must be made for epididymitis. Here, the onset is usually slow and there are other attending genitourinary signs. Usually the normal testicle can be palpated separate from the epididymis. Orchitis must also be considered, and the rarity of this malady must be kept in mind except as a complication of mumps or influenza. The pain of orchitis is not usually severe, however, and the swelling, although extensive, does not involve the cord. In a strangulated hernia the general symptoms are more severe than in a twisted testicle. Inguinal adenitis also must be included in the differential. In addition, of course, one may encounter torsions of the appendix or the testicle.[23-27] The first case of this entity was presented by Ombredanne in 1913 in conjunction with an article on torsion of the testis. The first descriptive article of this was by Kohn in 1922. Some 97 cases have been presented in the literature to date. The appendix-testis, or hydatid of Morgagni, will be recalled as a remnant of the mullerian duct at the upper pole of the testis. In a differentiation, the torsion of the appendix epididymis,[28] located at the caput major, the remnant of the mesonephric collecting tubule, must also be included. Some 107 cases of these two entities have appeared in the literature to date, and the diagnosis, of course, can be confirmed by exploration.

Reference has been made to spontaneous diversion of the twisted testicle. Cases of chronic, recurring varieties have been described wherein there is partial torsion with spontaneous remission occurring at intervals.[30] In making the differentiation, Ormond summarized the most important points as (1) the age of the patient; (2) sudden onset; (3) severity of the pain; (4) absence of history of genitourinary infection; (5) position of the affected testicle and scrotum; (6) position of epididymis with reference to the testicle; (7) tenderness over the testicle; (8) Prehn's sign.

Too often, and sadly so, the only evidence of torsion of the testicle presented to the examining physician is the atrophied testicle encountered following an undiagnosed torsion. An atrophied testicle is usually due to mumps, trauma (including operations for hydrocele, hernia, or varicoceles), or torsion. The atrophied testicle of mumps is soft and sensitive. The atrophied testicle of trauma or torsion is firm and insensitive. In the undeveloped testicle the organ is small and soft but not unduly sensitive.

RECENT LITERATURE

In a review of the literature by Richie, 23 reports of an infarcted intra-abdominal testis were cited. In 15 patients torsion had occurred, with an intra-abdominal testis containing a malignancy. No particular tumor type was favored.[31]

Everett and Hoffman reported that 26 of 489 published cases they were able to collect were bilateral.[32-34] In this review, 3 other cases have been added. Reviewing the literature, it is apparent that more attention is being paid to diagnosing torsion of the spermatic cord in the newborn. Two such cases were reported over a period of 9 months by Warren and Davis.[35] These constitute the fourth and fifth cases in the newborn which have been presented up to 1951. Those prior to this were 3 other cases presented by Campbell and Taylor.[36, 37] It was of interest here to note that in 1 case, where there was a scrotal swelling, the child had been delivered by

cesarean section. Exploration of the testicle was carried out 2 days postpartum, and the left testicle was removed because it had already undergone necrosis. Surgery in the second case was performed 18 hours postpartum. Here, too, the testicle was removed. However, adhesions were already present, and the torsion must have occurred in utero. This is evidence against the support of breech presentations possibly presenting trauma to the testicle, precipitating torsion, as suggested by Glacer and Wallace.[38] These latter authors also reviewed instances of spontaneous hemorrhagic infarction of the testicle in newborns. Here, of course, the signs are similar to that of torsion of the testicle, and exploration makes the definitive diagnosis. The sparsity in the literature of reports on the incidence of torsion in the newborn witnesses the need for an effort to make the diagnosis in this age group. In reviewing the literature, it is surprising to note that opinions concerning management of the scrotal swellings in the newborn are so very common. Some groups advocate a "hands off" policy with exploration of the testicle; however, the majority of the authors advocate exploration immediately.

TREATMENT

All the testicles involved, of course, cannot be saved, but because the organ is so vital to the psychologic as well as the physiologic well-being of the patient, more effort on the part of the physician must be made to save these important appendages. Accuracy of diagnosis is important not only for preservation of the testicle, for delay can precipitate severe complications. Pulmonary infarcts have been described in the literature following torsion, where there has been undue delay in the surgery. It is well to remember that surgery must be performd approximately only 4 hours from the time of onset of the severe pain to allow salvage of the testicle. Constant alertness must be maintained so that exploration of the testicle will be carried out in order to make the correct diagnosis.

Where the testicle is descended, an incision of the scrotum is suggested. In the instance of the undescended testicle, of course, the incision must be made in the inguinal region, extending into the scrotum if necessary. The scrotal coats and tunica vaginalis are opened and the torsion reduced. The parietal layer of the tunica vaginalis is excised as in a hydrocele operation. The testis is anchored to the scrotal wall. Inasmuch as scrotal abnormalities are likely to be bilateral, after torsion takes place on one side it is wise to anchor the testicle on the opposite side prophylactically. The need for bilateral orchiopexy when torsion is encountered cannot be overemphasized. A small Penrose drain is usually left in the scrotum. The scrotum is supported snugly with tape following the procedure. If, during the procedure, the tunica albuginea appears to be overly distended, nicking this layer can be carried out; however, after inspection, this should be reapproximated with suture in order not to have a herniation of the seminiferous tubules. It is far better to suspect a diagnosis of torsion of the spermatic cord and explore the testicle unnecessarily rather than procrastinate and allow a twisted testicle to go untreated. The exploratory procedure is simple and of short duration; therefore, there should be no hesitancy in proceeding with it.

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Growth Failure

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WHEN A CHILD falls much below the average in height for his age, it is likely that the doctor will be asked what the trouble is and will be expected to do something about it. Such problems, however, are by no means easy; not only are the basic factors controlling the growth process poorly understood, but the causes of short stature are numerous, ranging from harmless variants of normal to serious systemic diseases and endocrine disturbances. Under such cir-

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Basic factors controlling growth are poorly understood. History, measurements including body proportions, roentgenograms of bones, and special tests may be necessary to determine such types of growth failure as delayed adolescence, primordial dwarfism, systemic diseases, hypothyroidism, achondroplasia, and gonadal aplasia. Sustained acceleration of growth seldom can be achieved except for hypothyroidism.

cumstances it is not surprising that incorrect diagnoses and empirical methods of treatment are common.

The purpose of the present paper is to enumerate the commoner causes of growth failure and to present a simple approach to differential diagnosis, with emphasis on readily available tests. This approach inevitably will lead to oversimplification, and cases will be met which do not fit into the scheme presented hereafter, but it may help to dissipate some of the confusion which at present surrounds the diagnosis of growth disorders.

NORMAL GROWTH

The major determinant of body height is growth of the long bones. No increase in height is possible after the epiphyses close, and treatment at this stage is useless. Conversely, it can always be said that further growth is possible as long as the epiphyses remain open. Both the rate of growth and the time of epiphyseal closure affect the final stature; for example, in untreated cases of virilizing adrenal hyperplasia, the rate of growth in early childhood is unusually rapid, but since the epiphyses close early, final height is stunted.

Since growth of the lower extremities is more rapid than that of the trunk, the legs come to represent a progressively larger proportion of the total length. This results in a decrease in the ratio of upper to lower body segments from 1.73 at birth to unity at puberty. In certain disturbances, for example hypothyroidism, the body proportions remain infantile and the ratio is a valuable diagnostic aid.

It is convenient to use charts for plotting growth during childhood. The percentile charts designed for use in the Children's Medical Center, Boston,* include height, weight, and head size, while in the more elaborate Wetzel grid system, the level of development is correlated with physical growth. Both of these charts indicate the wide range of normal variation in the growth pattern, a point which may be reassuring to worried parents.

DIFFERENTIAL DIAGNOSIS

The approach to differential diagnosis of stunted growth should include a history and physical examination, careful body measurements, roentgenograms of the bones, and special tests as indicated.

The history should include all available information about growth and development since birth. Supplemental data may be obtained from well-baby clinic and school records. Since some disorders are familial, the height and weight of near relatives should be included, and if possible the age at which the parents reached puberty. Physical examination may reveal evidence of severe systemic disease, for example, of the heart, lungs, or kidneys, which may be responsible for growth failure. Abnormalities of the facies, and of the skin, hair, nails, and teeth may be found in some endocrine disorders.

Measurements should include height (or length in infants of less than 2 years), weight, and the ratio of upper to lower body segments. Head and chest circumference, and span (distance between outstretched finger-tips) may be useful in some cases. The length, which may be ½ inch greater than the standing height, is measured with the child lying on a firm flat surface with a fixed upright against the soles of the feet and a square against the vertex. For measurement of the upper and lower body segments another square is placed at the upper margin of the symphysis pubis, and the vertex-pubis and pubis-heel distances are measured. It is apparent that these measurements require the assistance of a second person, and also the cooperation of the child. A small error in the placing of the marker at the pubis can make a gross error in the ratio of upper to lower segments. Weight is taken with light underclothes only.

Roentgenograms of the bones may show evidence of an osteodystrophy or chondrodystrophy such as achondroplasia or osteogenesis imperfecta, or disturbances of epiphyseal development, for example, in hypothyroidism or primordial dwarfism. Bone age is commonly assessed from films of the wrist because of the ease of "counting epiphyses," and the availability of developmental standards. In young children, however, roentgenograms of the lower extremity and foot are more readily interpreted because several epiphyses appear in this area within a short time during infancy. It also should be remembered that some normal persons may show isolated abnormalities in the time of appearance of individual epiphyses, so it is unwise to make a diagnosis of bone retardation based on the appearance of a single group of centers.

Special tests cannot be enumerated in detail, but two common pitfalls in the diagnosis of hypothyroidism may be mentioned. The intake of iodides in cough medicines, tonics, and some vitamin preparations and the use of iodine containing radiopaque dyes may interfere grossly with the determination of protein bound iodine or radioiodine uptake. The serum cholesterol level, commonly used to confirm the diagnosis, is often within the normal range in athyrotic cretins and is therefore of little value in early diagnosis.

**Available from the Mead Johnson Company, Evansville, Ind.*

TYPES OF GROWTH FAILURE

Some common types of growth failure and their diagnostic characteristics follow.

1. *Syndrome of delayed adolescence.*[1] These are patients who grow slowly but steadily throughout childhood and go through a late but normal puberty. Final stature may be normal or somewhat reduced. The diagnosis is often only presumptive until adolescence is reached, since these patients may be very difficult to distinguish from the rare cases with growth failure due to pituitary lesions.

History: Normal, except for small size. Normal intelligence. Sometimes familial—parents may also have experienced delayed puberty.

Measurements: Generally reduced. Ratio of upper to lower segments normal.

Bone films: Retardation 2 to 3 years. Otherwise normal.

Special tests: All normal.

2. *Primordial or genetic dwarfism.*

History: Often small at birth. Physical examination usually normal, may have skeletal or other anomalies. Usually mature at normal age. Normal intelligence.

Measurements: Generally reduced. Ratio of upper to lower segments normal.

Bone films: Usually normal bone age. May have minor skeletal or epiphyseal anomalies. Occasionally bone age is retarded.

Special tests: All normal.

3. *Systemic diseases* (heart, lung, chest, liver, kidney, central nervous system).

History and physical examination: Usually diagnostic.

Measurements: Generally reduced. Ratio of upper to lower segments normal.

Bone films: Slight or moderate retardation.

Special tests: Diagnostic of underlying disease.

4. *Hypothyroidism.*

History: Lethargy, constipation, dry yellowish skin, developmental retardation, and delayed dentition.

Measurements: Length decreased proportionately more than height—these persons are "fat dwarfs." Lower segment short.

Bone films: Marked retardation. May show epiphyseal dysgenesis.

Special tests: Low protein bound iodine results. Low iodine uptake. These infants should be distinguished from cases of mongolism (skin smooth and clear, abnormal skin creases, other stigmas) and gargoylism (characteristic facies, frequent respiratory infections, large liver and spleen, characteristic bone films).

5. *Achondroplasia.*

History: Delayed growth from birth. Normal mental development.

Measurements: Very short arms and legs. Short span and lower segment.

Bone films: Diagnostic.

Special tests: Normal.

6. *Gonadal aplasia* (ovarian agenesis, Turner's syndrome, Bonnevie-Ullrich syndrome).

History: Moderate stunting of growth. Externally appear to have female genitalia. Some have associated anomalies (for example, webbed neck, coarctation of the aorta). Sexual hair at adolescence but no menarche or breast development.

Measurements: Moderate stunting of growth. Lower segment rather short.

Bone age: Normal.

Special tests: Patients have high follicle stimulating hormone levels. Laparotomy shows absence of gonads. Chromosomal sex determination shows patients often have a *male* pattern.

7. *Other types* including progeria, hypopituitarism, and hypoparathyroidism are relatively uncommon and cannot be considered here for reasons of space.

TREATMENT

Except in cases of hypothyroidism, sustained acceleration of growth seldom can be achieved by present day treatment. Unfortunately, many undersized children with normal thyroid function are treated with thyroid preparations, while the few overt cases of hypothyroidism are frequently missed. In many instances, thyroid is prescribed empirically in the hope that it may do some good, but the concept that subclinical endocrine deficiency unsupported by laboratory data is a cause of growth failure rests on no sound basis. It is perhaps fortunate that desiccated thyroid in the dose generally used is free from harmful side effects.

Testosterone may accelerate growth temporarily in both sexes, but continued use may cause premature closure of the epiphyses and undesirable virilization. Chorionic gonadotropin may accelerate growth in boys in some instances. An anterior pituitary growth hormone preparation which is active in man has recently been isolated and is under study, but the indications for its use (except in hypopituitarism) have not yet been defined. Many cases of growth failure probably result from end organ unresponsiveness or delayed secretion of growth factors rather than actual endocrine deficiency.

It is noteworthy that of the cases referred to Johns Hopkins Hospital for diagnosis and treatment of growth failure only 1 in 4 represented a clear-cut endocrine problem amenable to current methods of therapy.[1]

CONCLUSIONS

The causes of growth failure in childhood are numerous, but most cases fall into a few main groups. A diagnostic approach to these problems is presented with emphasis on clinical examination and readily available tests. Although treatment for growth failure at the present time is usually ineffective because of ignorance of the fundamental determinants of growth, more precise diagnosis allows the physician to approach the patient and his parents with increased confidence.

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Myofascial Syndrome With Trigger Mechanisms

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THE TERM "myofascial syndrome" is given to a group of signs and symptoms which occur in patients who have painful disorders originating in skeletal muscle or fascia. Specific underlying causes such as trauma, tumor, or infection may produce the same clinical pictures. Therefore, the term "myofascial syndrome" is in the same category as "congestive heart failure" inasmuch as it has a variety of causes. A myofascial syndrome may be acute or chronic, with or without trigger mechanisms. Clinical features of the myofascial syndrome include regional pain, skeletal muscle spasm, deep tenderness, cutaneous hyperesthesia, limitation of motion, postural changes, and typical emotional responses to the situation.

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A trigger area is a localized area in the tissues outside of the central nervous system which, when stimulated, results in the explosive onset of pain in and around the area of the trigger. This is usually combined with pain referred to some area of the body outside of the tissues immediately adjacent to the trigger. However, it is not uncommon to find that stimulation of some triggers results in local enlargement of the pain area rather than reference of pain elsewhere. Figure 1 shows diagrammatically the types of pain reference following stimulation of a trigger.

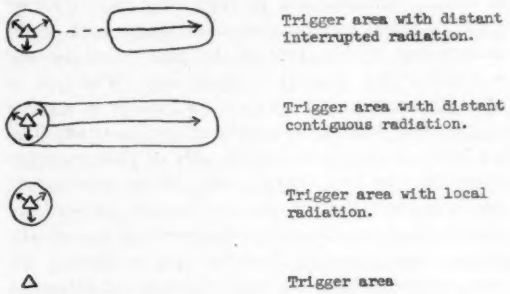
Trigger area with distant interrupted radiation.
Trigger area with distant contiguous radiation.
Trigger area with local radiation.
Trigger area

Fig. 1. Pain radiation from stimulation of trigger areas.

The diagrams show referred pain in one direction only. However, the area of referred pain may be cephalad, caudad, medial, or lateral. It is not uncommon to find reference of pain in different directions simultaneously. The pain is three dimensional and not just surface pain.

Trigger areas may be located in any peripheral tissue. These locations may be classified as follows, according to the tissue level involved:

Level 1—Skin.
Level 2—Subcutaneous tissue.
Level 3—Superficial layer of deep fascia.
Level 4—Skeletal muscle.
Level 5—Deep layer of deep fascia.
Level 6—Periosteum.
Level L—Ligament.

The most frequent locations are levels 3 and 4; next are levels 5, 6, and L; and least frequent are levels 1 and 2. Trigger mechanisms in levels 1 and 2 are not generally described in the literature, but a significant number of patients seen in the Pain Clinic demonstrate them.

Myofascial syndrome includes pain, skeletal muscle spasm, deep tenderness, cutaneous hyperesthesia, limitation of motion, postural changes, and emotional responses. A trigger area in tissues outside the central nervous system, when stimulated, causes explosive pain. Various measures including injection of local anesthetic drugs, sympathetic nerve blocks, and surgical excision of trigger areas may relieve symptoms, but there is a tendency for recurrence.

So-called latent trigger areas can be found in almost all adults. These latent trigger areas are not clinically symptomatic but can be found after careful search. It is believed that these represent subclinical trigger mechanisms which develop from the mechanical stresses and strains of daily life applied to aging tissues but which are not sufficiently active to produce clinical symptoms. These latent triggers may become activated if sufficiently aggravated, or overt trigger mechanisms may appear in an area which had no prior latent trigger mechanism present.

Trigger areas also may be classified as primary, secondary, tertiary, and so forth. By this is meant that on initial examination one trigger area seems outstanding as the cause of the pain syndrome and is termed the primary trigger area. When it is blocked, immediately or a day or two later, another trigger area may become evident but generally does not produce exactly the entire area of pain radiation caused by the first trigger area. When this second one is blocked, a third one may become evident and require blocking. All of the trigger areas are actually present simultaneously, but the one producing the most intense pain is the most evident and easiest to find. Careful search often reveals more than one trigger area present in many of these pain problems.

In one series of 185 consecutive patients studied in the Pain Clinic, 23 per cent were shown to have trigger mechanisms. Two-thirds of this 23 per cent had trigger mechanisms alone accounting for the pain and one-third had trigger mechanisms associated with some other type of mechanism producing pain.

Experience in the Pain Clinic indicates that myofascial syndrome with trigger mechanisms and reflex sympathetic dystrophy are two commonly misdiagnosed and mistreated pain problems. This observation becomes important when it is noted that each of these pain syndromes is common clinically.

PATHOLOGY AND PATHOGENESIS

There is no specific microscopic tissue pathology seen in trigger areas. If a trigger area is located in a scar or a fascial layer containing chronic inflammatory thickening, characteristic microscopic findings of these tissue reations will be seen. Occasionally a small fat lobulation herniated through a fascial defect may be found. It is not uncommon to find linear thickenings in skeletal muscle parallel to the axis of the fibers which seem to be areas of local muscle spasm. However, no pathologic manifestations are found in tissue in most instances. At present the trigger must be considered an area of pathologic neurophysiology rather than an area of pathologic neuroanatomy. It may be the equivalent in fine nerve terminals of idiopathic peripheral neuritis without histopathology in larger nerves.

The actual pathogenesis of trigger mechanisms is unknown. History of episodic or constant myofascial mechanical stress is too frequent to be overlooked. At our present level of knowledge it must be considered that the development of trigger mechanisms is secondary to mechanical stress. No one so far has been able to induce pathologic trigger mechanisms experimentally.

Embryologic somite formation accounts for the segmentation of innervation of the fully developed human body. That portion of the neural axis which occurs within a somite innervates the structures which develop from that somite, namely, the dermatomal, myotomal and sclerotomal derivatives. Because the structures which develop from each somite do not migrate exactly the same distance or direction, and because each structure maintains its original somite innervation, the pattern of segmental innervation in any one particular area of the body usually does not correspond to a single cord segment.

Considering the embryology and the experimental data of Kellgren,[4] Inman and Saunders,[2] Keegan,[3] and Feinstein,[1] who mapped dermatomes, myotomes, and sclerotomes in human subjects, one begins to have a foundation on which to base an explanation of the pain radiation associated with trigger mechanisms. Neuronal circuits within a single cord segment, or adjacent segments, become involved in a pathologic pain which is self-propagating when once started and is induced by excessive stimulation from the periphery. Spillover into the anterior and lateral horns accounts for the skeletal muscle and autonomic manifestations of the pain syndrome.

DIAGNOSIS

The diagnosis of myofascial syndrome with trigger areas involves physical stimulation of the trigger, consequent reproduction of the pain syndrome, and subsequent relief by block of the trigger area with a local anesthetic drug. The examiner's finger, a reflex hammer, ultrasound, a needle used for probing, or other similar measures serve to locate the trigger area or areas. These are very small, usually a centimeter or less in diameter and sometimes only a millimeter or two in diameter.

THERAPY

Unless active therapy is instituted, these pain problems tend to become worse and chronic, although spontaneous recovery sometimes occurs.

Various measures have been used to treat trigger areas: (1) sustained pressure, (2) dry needling,

(3) massage, (4) ethyl chloride spray, (5) ultrasound, (6) injection of saline solution, and (7) injection of local anesthetic drugs.

The efficacy of these measures progresses roughly in the order named. Certainly repeated injections of local anesthetic drugs into the area of the trigger have been the most valuable. In the series referred to earlier, 77 per cent responded to local anesthetic injections.

In addition to the measures enumerated, sympathetic nerve blocks are often effective, as well as the surgical excision of reasonably accessible trigger areas. Whenever trigger areas are removed surgically, the procedure should be done under local infiltration anesthesia, leaving the area of the trigger completely unanesthetized until it is located by the response of the patient to stimulation of it by probing with a needle. General anesthesia may then be induced for its excision.

It should be stated emphatically that all trigger mechanisms do not respond satisfactorily to nerve blocks or other measures. Personal experience with surgical excision is too limited at present to allow generalization, but it is being investigated.

However, the majority of patients do respond satisfactorily to repeated trigger blocks, and when they do not, complicating factors such as emotional disturbances or persistence of the inciting or exciting causes should be looked for. Once this syndrome develops, there is a tendency for it to recur. An active trigger area which apparently disappears under adequate nerve block therapy actually becomes latent.

SUMMARY

Myofascial syndromes with trigger mechanisms are common problems in clinical practice, and frequently the trigger mechanisms are unrecognized. Pain reference patterns are fairly constant and are helpful in diagnosis. Adequate therapy usually relieves the clinical symptoms, but there is a definite tendency for recurrence.

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Traumatic Lesions Of the Urogenital Tract

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IT IS THE PURPOSE of this paper to present the incidence, briefly the methods of management, and some of the experience with traumatic injuries to the genitourinary tract as seen over a 10 year period at Parkland Memorial Hospital, Dallas. This hospital serves the community as the chief receiving center of major trauma for a metropolitan area of some 700,000 people. Automobile accidents constitute the major source of the injuries. With an ever increasing incidence of such accidents, consideration of injuries to the urogenital tract seems a timely subject for consideration. For purposes of this discussion I would like to divide the injuries into (1) renal, (2) ureteral, (3) vesical, and (4) genital and urethral.

DIAGNOSTIC APPROACH

The most common finding which has prompted urologic consultation has been that of hematuria. This has been either gross or significant microscopic bleeding and has been present in 94 per cent of our urinary tract injuries. The presence of pain, tenderness, discoloration, and muscular spasm overlying the renal or vesical area, with or without hematuria, must be taken as evidence that injury to these organs may exist. It then becomes the duty of the physician to determine the nature and severity of the injury.

Major trauma to the urogenital tract is so often accompanied by other injuries which may be, for the moment, more life endangering to the patient, that frequently little time is available for a leisurely work-up. Associated chest, abdominal, and orthopedic injuries often require immediate surgery, and it is highly desirable that any work-up indicated on the genitourinary tract be accomplished prior to surgery. A kidney-ureter-bladder film is ordered immediately as a first step. In cases where the patient cannot be moved from the litter, we have found films made with a portable grid and the standard x-ray machine of value. In most large machines, the tube can be positioned over a litter which is placed beside the regular table. The films obtained are of much better

quality than those made with a portable machine. A Foley catheter is next inserted and left indwelling. Urine which may be obtained is subjected to a complete urinalysis. The roentgenogram is next read with particular attention to the presence or absence of fractures of transverse processes, ribs, and bones of the pelvis. The psoas shadow on each side is inspected. A cystogram is made by introducing 150 to 200 cc. of a dilute mixture of the regular intravenous dye by gravity flow. An immediate and postdrainage film is made. Slightly earlier dye may have been injected intravenously so that often the cystograms in addition may represent 5 and 10 minute excretory pyelograms. Results have been gratifying with the use of excretory urography in this manner. Contrary to some opinions on the matter, good or entirely satisfactory visualization sometimes has been obtained in the presence of lowered blood pressure. In 5 of our cases diagnostic urograms have been obtained with the patient in a clinical state of shock and with the systolic pressure below 100.

When urethral injury is suspected, urethrograms are made by introducing the radiopaque medium through a short catheter. Special medium is now available for this purpose and is excellent. We have found that a mixture of one-third water soluble jelly and two-thirds intravenous dye is satisfactory. This is prepared when needed by shaking the ingredients together in a sterile urine bottle. The exposure is made while the medium is being injected per urethra. The patient's pelvis is tilted in the oblique position. I should add that when indicated and necessitated by the failure of excretory urography to give the required information, retrograde studies have been used. Infection has not been a problem in these cases.

RENAL INJURIES

Renal injuries, as might be suspected, have accounted for the majority of the injuries to the genitourinary tract. There have been a total of 105 such injuries in the past 10 years. With a total of 16,267 admissions either to the general surgical service or urology service in the same period of time, these injuries account for .63 per cent of the admissions. To crystallize our thinking about these injuries, we find it advantageous to classify them according to the description of Sargent and Marquardt.[3] First is the large group of injuries which are manifest by simple contusion, with or without minor parenchymal fracture. These patients have minimal to moderate pain and tenderness. Hematuria is usually of brief duration, and the patients exhibit essentially normal radiographic studies. Second are those injuries in which there is frank rupture of the kidney with the loss of blood and urine to the retroperitoneal space. These patients usually have marked localized pain and spasm, have total gross bleeding of variable duration, and upon radiographic examination show distortion of the normal pattern and evidence of retroperitoneal hematoma. The final group consists of those injuries manifest by a shattered kidney. Urograms show gross distortion of the normal architectural pattern or perhaps nonvisualization. The clinical picture in these cases is usually that of a severely injured person, in shock, and often with a rapidly expanding flank mass.

The approach in the management of these cases has been a conservative one with the rationale that bleeding from an injured kidney tends to be self limited. The capsule frequently exerts an excellent tamponade effect in the less severe injuries when it is essentially intact. Gerota's fascia often will help limit the bleeding in the more severe injuries. Many kidneys are possibly removed, which might otherwise be saved, because of surgical intervention. The fascial planes and barriers are removed with resulting profuse hemorrhage which can be controlled only with a nephrectomy. On the contrary, the extremely severe injuries with continued profuse hematuria, rapidly expanding flank mass, and uncontrollable state of shock in spite of adequate blood and crystalloid therapy have been subjected to immediate surgery. Rapid, sometimes heroic intervention in these cases has made the difference in life and death for the patient. In 2 of our cases the renal pedicle was injured to such an extent that complete exsanguination undoubtedly would have occurred within a short period of time had not the bleeding vessels been rapidly isolated and ligated. In 1 case the renal artery was completely divided.

Thirty-two of the injuries have been as a result of automobile accidents. These have ranged from relatively common simple contusions of the kidney to severe compound injuries of the kidney associated

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Hematuria most commonly prompts urologic consultation following trauma. Genitourinary work-up should be done if possible before surgery for other injuries. In a 10 year study, renal injuries accounted for the majority of injuries to the genitourinary tract, and most did well with conservative management. Ureteral injuries, bladder injuries, and urethral rupture called for prompt surgery.

with other injuries to bone or soft tissue. The remaining 73 injuries have resulted from various causes ranging from falls (including an airplane crash) to gunshot and stab wounds. A recent renal injury was produced by a sharp blow to the flank with a 2 by 4 board inflicted by a woman's husband during a mild family argument. The ages have ranged from 6 to 70 years with the majority of the cases in the third and fourth decades. Thirty-one of the 105 patients were subjected to exploratory surgery immediately or shortly after admission. The causative agent in 24 cases was a gunshot or stab wound which in most cases warranted surgical exploration apart from the renal involvement. The kidney was either drained only or repaired (including partial nephrectomy) in 21 of the cases. Nephrectomy was done in 10. Twenty-nine of the patients survived. Our follow-up records show that 1 patient required a subsequent nephrectomy. He developed severe and uncontrollable hemorrhage 3 weeks following the initial exploration and preservation of the kidney, and an emergency nephrectomy had to be done. He recovered without further complications.

This leaves 74 cases in which the injury was managed conservatively. Sixty-four did well with enforced bed rest, antibiotics, and supportive therapy. In most cases, the hematuria subsided in 24 to 48 hours. In several of the cases, the hematuria persisted for several weeks, and yet the patients made complete recoveries with follow-up excretory urograms showing no evidence of significant residual damage. In 6 cases later nephrectomy became necessary. Four of these patients were found to have preexisting hydronephrosis due to ureteropelvic obstruction, and nephrectomies were done in each case because of the severity of the disease and lack of renal parenchyma. One case was subjected to operation with a preoperative diagnosis of renal tumor, and a large hemorrhagic cyst was found. In an additional 4 cases drainage of infected perinephritic tissues was required with partial nephrectomy in 3 cases.

I believe that the intelligently directed conservative approach has paid dividends in reducing the surgical morbidity in these patients. I think that many kidneys have been salvaged that might otherwise have been sacrificed, and that all of this is the direct result of "watchful waiting" and the judicious use of the "knife."

URETERAL INJURIES

Ureteral injuries other than surgical accidents have been reported recently by Dr. Harry M. Spence and myself.[4] They consist of 6 cases and were produced by either gunshot or stab wounds. Concomitant injury to the upper ureter and pelvis, when associated with renal injury, is not included in this group. As indicated by the scarcity of reports in the literature, primary missile injury or stab wounds of the ureter are uncommon injuries. The mobility of the upper ureter, which renders it capable of dodging when attacked, undoubtedly protects it from many injuries which it might otherwise receive. Being relatively more fixed, the lower or pelvic ureter is more commonly injured in these cases. Five of the patients were victims of gunshot wounds; 1 of a stab wound. One case was diagnosed preoperatively, searched for at the time of surgical exploration, and repaired primarily at the time. One injury was overlooked at the time of exploration or developed subsequently as the result of "blast effect." Development of a persistent urinary fistula from the surgical wound prompted studies leading to the diagnosis some 5 weeks following the injury. Surgical exploration at that time revealed a long 4 cm. deficit in the ureter at the junction of the upper and middle third. The ureter was held together by a mere strand of tissue. An intubated ureterostomy was tried in this case; however, the patient later developed a severe impassable stricture and a nephrectomy became necessary.

In 2 of the cases, the diagnosis was made at the operating table during the exploration, and the severed ureter was anastomosed end-to-end over a splinting catheter. The end result was excellent in 1 of these cases with follow-up studies showing no evidence of the injury. The other patient died soon after the operation because of the severity of the associated injuries. The fifth patient in the series had received a bullet wound of the bladder. This was recognized at the time of exploration and a suprapubic catheter had been left indwelling. He later developed a ureterorectal fistula which was resolved by means of a ureteral reimplantation into the bladder. The final case was one of partial injury to the upper ureter from a gunshot wound which became manifest 2 days following the injury by sepsis and flank tenderness and spasm. This situation responded well to simple drainage of the periureteral tissue about the injured area of the ureter.

Excretory urography has been useful in these cases and points up again the distinct advantage of having preliminary radiographic study in violent injuries of this type. Simple end-to-end anastomosis has been the procedure used, if at all possible, along with a suitable splinting catheter which is usually brought out suprapubically and anchored to a suprapubic catheter.

This series is admittedly very small, and no conclusions can be reached other than that these injuries do occur from time to time and that the "golden time" for repair is during the initial surgery.

BLADDER INJURIES

Traumatic injuries to the urinary bladder constitute one of the most pressing problems that the urologist may be called upon to treat. A review of the ideas and evolution of the management of severe bladder wounds is interesting in that the now clear-cut principles of immediate and thorough drainage of the prevesical space with suprapubic cystostomy were slow to crystallize. As late as World War I, the treatment was not standardized and universally accepted. These injuries carry a high mortality rate as indicated by Culp[2] with a mortality rate of 64 per cent in 33 cases. Bacon reviewed 147 cases in 1947 with an over-all mortality rate of 36 per cent. Two-thirds of these injuries were intraperitoneal.

There have been 39 cases of bladder injury at Parkland Memorial Hospital in the past decade. Twenty-seven were major injuries involving a significant defect in bladder continuity. The remaining 12 cases were injuries described as severe contusions of the bladder. These injuries were received chiefly as a result of automobile accidents with cystograms failing to show any evidence of extravasation. Subsequent cystoscopy revealed contusions of the bladder wall.

Of the 27 cases with extravasating damage, surgery was performed in 26 immediately or soon following admission to the hospital. One injury was chiefly to the vesical neck area in a woman with multiple fractures of her pelvis. There were also tears in the superior and lateral vaginal vault from which urine was found to drain. She was treated with urethral catheter drainage alone and healed well without fistula formation or other complications. Of the remaining 26 cases which were explored, 11 were frank ruptures of the bladder with urinary extravasation. Again, these injuries were chiefly the result of automobile accidents and involved an associated fractured pelvis in 7 instances.

Three injuries were extraperitoneal, 5 were intraperitoneal, and in 3 cases there were multiple defects in bladder continuity with both intraperitoneal and extraperitoneal extravasation.

Of the remaining cases, 13 were as a result of gunshot wounds and 3 resulted from stab injury. It is interesting to note that the gunshot wounds reflected the highest incidence of false negative cystograms in the entire series. In 4 cases definite bladder wounds were found on surgical exploration where earlier cystograms had failed to show evidence of bladder injury. Proper drainage was instituted, however, along with cystostomy, and these patients made satisfactory recoveries. Our plan for management is the generally accepted one of immediate surgical intervention following diagnosis. Major defects are closed, a large caliber suprapubic catheter is left in place, and the prevesical and paravesical spaces are adequately drained.

There have been 4 deaths in the 27 cases involving major injury. The patients who died had severe associated injuries which contributed heavily to their deaths. In light of the high over-all mortality rates quoted for these injuries, I consider that this constitutes a very acceptable outcome and that this is the direct result of early diagnosis and immediate and adequate surgical intervention.

INJURIES TO GENITALIA AND URETHRA

More than 100 patients have been admitted or treated on an outpatient basis for a multiplicity of injuries to the genitalia. These range from the commonly encountered "zipper injuries" to the prepuce and penis in young males to several cases of total emasculation. There have been severe denuding injuries to the penis and scrotal tissues. The principles of utmost conservatism have been adhered to in these cases. Debridement has been kept to a minimum and then generally done only as the devitalized areas become apparent. Extensive skin grafts have been utilized in several cases to cover and restore denuded structures.

Sixteen cases of urethral rupture have been treated. These grave injuries, like those to the bladder, prompt rapid surgery. In most cases, they have resulted from automobile accidents with fractured pelvic bones. Several cases have been as a result of falls of the "straddle type." One injury was produced by a falling circus tent pole. These injuries have been treated with immediate suprapubic cystotomy followed by attempts to reestablish urethral continuity with interlocking or plain sounds and catheters. An indwelling Foley catheter is then left in place for 2 to 3 weeks usually under slight traction for the first day or so. We have follow-up records on only 4 of these patients. They have done well and are followed periodically in our clinic for urethral calibration and dilation as needed. One patient died shortly following admission and after the diagnosis was made of severe multiple injuries.

SUMMARY

Cases of violent trauma to the urogenital tract for a 10 year period have been studied.

The importance of early and definitive diagnostic studies prior to surgery is emphasized. The excretory urogram has been found to be a valuable aid in this study.

Briefly, the incidence, types, and methods of management of these injuries have been described.

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Changing Concept Of Salt Water And Surgery

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THE PARENTERAL administration of saline solution was used as early as 1831 to correct a severe deficit of salt and water in the body;[12] however, the clinical use of saline solutions as an adjunct to surgical therapy had to await the development of chemical and analytical methods designed to measure changes in body fluid equilibriums. Until the last two decades even these measurements were concerned almost entirely with changes in concentration of formed elements and electrolytes in the blood. With the edifying concepts of fluid compartmentalization and volume changes in relation to total body solute and water content, rational attempts at the maintenance of fluid and electrolyte equilibriums before, during, and after surgical procedures began to appear. One cannot enumerate all of the pioneers in the development of these concepts, but the names of such workers as Gamble, Harttman, MaCance, Peters, Darrow, Coller, and Moyer cannot be omitted.

It was recognized at the beginning of this century that some change occurred in normal body fluid equilibriums with the use of anesthesia and surgery.[19] Since that time the nature and significance of these changes has been under intensive investigation by many different research groups. In general, the problem has now resolved itself into three major phases: (1) preoperative evaluation of the fluid and electrolyte status of the patient coming to surgery, (2) changes induced in body fluids during the operative procedure by operative manipulations and anesthesia, and (3) postoperative maintenance or correction of fluid and electrolyte changes present before and induced by surgery.

The purpose of this communication is to clarify the changing concepts in the spheres enumerated by calling attention to the experience of many different research workers and by recording our own clinical and laboratory observations regarding the fluid management of surgical patients.

VOLUME CONCEPT

The functional compartmentalization of the body fluids has been well outlined by Gamble,[8] who described intracellular fluid (within the tissue cells) and extracellular fluid (interstitial fluid plus that contained within the vascular compartment). Moyer[17] devised a clinically applicable and extremely workable plan for the diagnosis of alterations in the volume and concentration of the body fluids. His diagnostic scheme includes (1) volume disturbances, (2) concentration changes, and (3) compositional disturbances.

It has become increasingly obvious over the past few years that the extracellular fluid volume is the most labile, the most responsive, and the most frequently involved compartment of the body fluids in surgical illnesses.

Preoperative or preexisting volume deficit, if acute, may cause definite clinical signs, of which the most striking are (1) signs of central nervous system depression, (2) signs of reduction of the intravascular extracellular volume, (3) signs of reduction in the interstitial extravascular extracellular fluid volume in the tissues, (4) signs of reduction in the energy expenditure of the body, and (5) intestinal signs. These signs have been well outlined by Moyer.[17]

Clinical signs associated with acute volume deficit

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Studies have clarified the role of extracellular salt water in preoperative and operative periods. The picture postoperatively is not yet understood but is being investigated. It is likely, however, that extracellular fluid volume deficit plays a part in physiologic changes postoperatively and that giving saline solution during surgery would be beneficial.

during surgery by and large are limited to vascular signs.

Postoperative aberrations in fluid and electrolyte balance are generally incident to preexisting fluid and electrolyte disturbances and to those produced by the surgery itself. They may be caused, however, by prolonged nasogastric suction, ileus, fistulas, or inadequate maintenance fluids in a patient who is not eating or drinking.

As stated previously, it was recognized approximately 50 years ago that fundamental change in the regulation of salt and water excretion occurs incident to anesthesia and surgery.[19] Since that time many attempts have been made to identify the responses of salt and water metabolism to anesthesia and surgery. Many measurements have been made of the changes in renal hemodynamics during surgery.[20] Moyer[16] has outlined graphically the acute temporary changes in renal function which occur following major operative surgery and anesthesia in the absence of organic renal disease. Subsequently, advances in salt and water metabolism, including identification and function of the hormone aldosterone, have been well described.[10] It also has been shown that one of the responses of normal man to surgical trauma is a marked increase in aldosterone secretion in the postoperative period.[4, 13, 14] This would tend to account for some of the postoperative changes in function exhibited by the normal kidney.

Recently in our laboratory we have been able to demonstrate what is apparently a marked acute reduction in functional extracellular fluid volume, as measured by radioactive sulfate, in response to major operative surgery.[22] This occurs during the operative period, with no preexisting deficit and without fluid therapy during the time of surgery. This lends support to postulations that postoperative salt retention may be due to extracellular fluid volume deficit acquired during surgery. Consequently, postoperative alterations in renal response to fluid administration appear to be a physiological response to the reduction in functional extracellular fluid acquired during the operative period.

ILLUSTRATIVE CASE

The following case report will illustrate (1) preexisting extracellular fluid volume deficit and (2) extracellular fluid volume deficit acquired during a surgical procedure which was severe enough to produce clinical signs.

L. M. S., a 42 year old white married woman, was admitted to the hospital on March 5, 1955. This patient had had an abdominal hysterectomy 9 years prior to this admission, and in the ensuing period she had had 8 exploratory laparotomies for freeing adhesions which were causing mechanical intestinal obstruction. On this admission the patient began to have cramping periumbilical abdominal pain and vomited 24 hours prior to admission, with coincident cessation of passage of flatus.

Physical examination at the time of admission revealed an acutely ill woman who was apathetic and weak and showed no interest in her surroundings whatsoever. Her peripheral veins filled quite slowly; she had pulse of 110 per minute; blood pressure was 120/80, and when she was placed in a sitting position blood pressure fell to 100/60. Her eyeballs were soft and sunken, and there was already some loss of tissue elasticity. Examination of the abdomen revealed marked distention of the entire abdomen with high pitched peristaltic rushes coincident with the cramping pain. There was definite tenderness between cramps and a moderate amount of involuntary spasm over the entire abdomen. White blood count was 15,000 per cubic millimeter with a moderate left shift; temperature was 101 F. The blood carbon dioxide was 24 milliequivalents per liter; chloride was 98 milliequivalents per liter. Serum potassium was 4.6 milliequivalents per liter and serum sodium was 140 milliequivalents per liter. Nasal gastric suction was instituted, and the patient was given 2,000 cc. of 5 per cent glucose in lactated Ringer's solution. Roentgen examination confirmed the diagnosis of mechanical small intestinal obstruction.

Laparotomy was performed 6 hours after admission; there were multiple dense fibrous adhesions to all previous laparotomy wounds throughout the entire abdominal cavity, and virtually the entire small bowel was involved. There was one area at the site of this present obstruction which had undergone a volvulus of approximately 8 inches in length around the adhesion, and there was definite early interference of the blood supply to the involved loop. The volvulus was reduced and the adhesions were freed. Following this the adhesions to the small bowel were freed from the ligament of Treitz to the ileocecal valve. There were two areas in midileum which were so intimately bound to the adhesions in the pelvis that serosal denudation was effected circumferentially involving the entire circumference of the bowel for a period of approximately 2 feet. Because of this it was thought that plication could not invert the denuded serosa, and this area of the bowel was resected with an end-to-end anastomosis being done. Following this a plication of the entire small bowel from the ileocecal valve to the ligament of Treitz was done, using approximately 8 inch loops.

Prior to plication, the patient developed tachycardia, and the blood pressure fell from 120/80 to 100/80. After administration of 1,000 cc. of lactated Ringer's solution the pulse fell to 80 and the systolic pressure returned to 120. During surgery the patient was given 2,500 cc. of lactated Ringer's solution, and aseptic decompression was done through the resection site prior to the anastomosis.

On the day following surgery the patient received 2,000 cc. of 5 per cent glucose in water intravenously and an additional 1,000 cc. of lactated Ringer's solution for replacement of salt water loss via nasogastric suction, and on the following day she had good active bowel sounds and was passing gas. The tubes were removed; she was allowed to drink and eat; and she was discharged from the hospital on the sixth postoperative day asymptomatic. She has remained well to date.

This patient demonstrated both a preexisting and an operative deficit of extracellular fluid. These deficits were repaired with administration of a balanced salt solution in the form of lactated Ringer's solution. The diagnosis of an extracellular fluid volume

deficit was made on the basis of history and physical examination; the blood chemistries were normal. Though concentration and compositional disturbances may, and often do, coexist, the extracellular fluid volume deficit usually should be corrected first, and the primary repair solution should be a balanced saline solution.

It also should be noted that the only signs of an extracellular fluid volume deficit which were apparent during surgery in this patient were cardiovascular, that is, tachycardia and hypotension.

In general, postoperative fluid therapy should be directed toward maintenance of the metabolic requirements for water. This will include replacement of sensible and insensible loss of water averaging 1,500 to 2,000 cc. of 5 per cent glucose in water per day. Saline solutions should be given only as replacement for measured losses of salt water such as that obtained through nasogastric suction.

DISCUSSION AND CONCLUSIONS

With clinical compartmentalization and edification of the role of salt water volume, rational efforts at clinical diagnosis of extracellular fluid salt water volume deficit in the preoperative and operative periods can be accomplished. The appropriate therapy with intravenous saline solutions can then be instituted. However, postoperative alterations in fluid and electrolyte equilibriums remain more complex from the diagnostic as well as from the therapeutic standpoint. It has been well established that there are definite temporary changes in renal functions associated with operative surgery.[16] These consist primarily of decreased sodium excretion, diminution in water excretion, and a reduction in the output of solutes such as urea and chloride.

It can be seen from previous studies that measurements of the filtered sodium mass may be normal, increased, or decreased without particularly affecting salt and water retention in the postoperative patient.[20] Further, it can be shown that there is necessarily an increase in the tubular reabsorption of salt and water in the postoperative period.[20] Since the "effective" extracellular fluid volume has been shown to be a major determinant of renal sodium excretion in the normal person,[7, 23] it is probable that a contraction of this portion of the body fluid may represent the most significant physiological stimulus to postoperative sodium retention. In this regard many attempts have been made over the past several years to measure functional extracellular fluid volume following surgery.[1, 5, 15] These have included efforts to show a loss of extracellular fluid as sequestration in and about the wound,[18] in the intestinal wall and lumen, and in pleural and peritoneal cavities.[3] However, acute measurements of changes of extracellular fluid were dependent until quite recently upon the principle of dilution of dyes and other substances with a relatively slow rate of equilibration throughout the extracellular fluid. Recently, however, we have been able to demonstrate[22] a marked acute reduction in functional extracellular fluid volume during surgery using radioactive sulfur-35 tagged sulfate, a substance which is rapidly diffusible through, and confined to, the extracellular fluid space. This lends support to the postulated diminution in extracellular fluid volume which was overcome by preoperative and operative loading with sodium chloride by Randall and Papper.[20]

The mechanism by which a diminished extracellular fluid volume affects renal tubular function has not been clearly defined. An attractive thesis is that proposed by Homer Smith,[23] which postulates a volume receptor which sends stimuli by either hormonal or neural pathways to the brain stem and thence to the renal tubule. An increase in urinary aldosterone, the most potent salt retaining hormone known to man at the present time, has been shown repeatedly in response to trauma.[4, 13, 14] However, it must be emphasized that this is possibly only one link in the normal chain of response to surgery, since it has been shown that the same degree of sodium and water retention occurs in both animals and human beings who have had bilateral adrenalectomy and who are maintained on cortisone.[11, 15, 25] Likewise, patients with Addison's disease exhibit the same response.[9, 20] Consequently, the role which aldosterone plays in the normal subject during the postoperative period is not clear.

Since extracellular fluid volume has been shown[2] to be a major determinant of aldosterone secretion, it is our belief that the increased excretion of aldosterone postoperatively is due to the deficit of extracellular fluid acquired during surgery.[22] This would then be a homeostatic emergency measure to retain salt as a response to salt water functionally lost during surgery.

Diminished water excretion in the postoperative period recently has been ascribed to an increased secretion of antidiuretic hormone;[6, 13] this may result from many factors, including the decreased effective extracellular fluid volume which we have demonstrated recently. Other factors, such as emotion, postoperative wound pain, and anesthetic drugs, may play a contributing role.[24]

Regardless of the precise mechanism involved, the establishment of postoperative sodium and water intolerance has been demonstrated conclusively. Since these changes are probably a physiologic expression of a volume deficit, it seems likely that administration of saline solutions during surgery will be beneficial. Further studies are now in progress to elucidate this problem.[20, 22]

SUMMARY

Attention is called to the historical development of present day concepts of body fluid and electrolyte compartmentalization, diagnosis of extracellular fluid volume deficit and its therapy in relation to operative surgery, and the importance of extracellular fluid volume deficits which either preexist or which occur during surgery together with their relation to postoperative aberrations in fluid and electrolyte balance. An illustrative case representing these entities is reported. The changing concepts and attempts to explain the present day concept of salt water metabolism in surgical patients are presented.

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Fat Embolic Phenomena During Anesthesia and Surgery

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IN 1699 the first investigation of the subject of fat embolism was undertaken by studying the effects of milk injected into a rabbit's ear vein. Since that time this subject has produced an extensive bibliography, and episodes of fat embolism have been plentifully documented. However, the pathogenesis is not so clearly defined that the occurrence of clinical signs and symptoms of fat embolism can be predicted even under conditions which seem optimum for such development. Peltier[8] pointed out that an increased incidence of fat embolism can be expected when there is an increased awareness, understanding, and interest in the syndrome evidenced by the staff taking care of severely injured patients.

Several reports are available in the literature which have attempted to define the role which anesthesia plays in the etiology and pathogenesis of the fat embolic phenomena. One such report was that of Lehman and Moore[3] in 1927. Their work, conducted on experimental dogs, led them to the conclusion that the use of a fat solvent anesthetic such as ether and chloroform was directly related to the increased occurrence of this syndrome. It was postulated that a fat solvent anesthetic, when in solution in the

This study is from Parkland Memorial Hospital and Southwestern Medical School of the University of Texas.

cardiovascular system, absorbed the fat particles present in and around fracture sites of patients undergoing trauma. Further, these fat particles would remain in a stable emulsion until the fat solvent anesthetics were removed, via exhalation, from solution at the end of the surgical procedures, producing a pulmonary fat embolism. This same theory in modification has reappeared several times in the literature and has been both confirmed and denied, in theory, by other investigators.[1, 4, 10]

From the standpoint of bone manipulation evidence has been brought forward that there is an increase in circulating fat following manipulation and reduction of fractures, particularly of the lower extremity.

The essential precipitating factor for either the immediate or delayed clinical syndrome of fat embolism seems to be the presence of fat in the circulating blood in particulate size sufficient to lodge in or obstruct arterioles and capillaries. Little significance has been attached to the fine emulsion of fat subsequent to a metabolic lipemia, and there has been developed no clinical correlation between chronic diseases characterized by a lipemia and an increased incidence of fat embolism following extensive trauma to bones. Peltier[6] in a significant study on rabbits rendered lipemic by diet showed that the presence of lipemia did not contribute to the degree of fat embolism which accompanied fractures of the femur.

Peltier[8] has defined the cause of death in patients dying of fat embolism shortly after injury as due to acute failure of the right ventricle occurring as a consequence of the mechanical blockade of the pulmonary vessels by the emboli. The causes for the classical clinical signs and symptoms developing 2 or 3 days following injury is more obscure. These later evidences may present themselves in one or more of three phases: pulmonary, with cyanosis and dyspnea; cerebral, with restlessness, disorientation, delirium, and coma; and cutaneous, with petechiae occurring principally in the blush area. These findings may be subsequent to chemical changes, associated with the hydrolysis of neutral fat particles lodged in the capillaries and arteries with the release of free fatty acids. The release of free fatty acid at the site of capillary lodgement of neutral fat may result in the dissolution of the capillary walls,[7] providing a plausible mechanism for the delayed cerebral and cutaneous findings.

Circulating fat particles were determined in the blood of patients undergoing elective orthopedic procedures and in some patients sustaining trauma before operation. Hyperchylomicronemia was frequent. In 54 of the 100 patients there was significant hyperchylomicronemia without evidence of physiological changes. Anesthesia probably plays an insignificant role in the fat embolic phenomena.

PRESENT STUDY

This present study has been undertaken to investigate the presence of circulating fat particles in the blood of patients undergoing elective orthopedic procedures and in some patients having sustained trauma prior to operation. The method of study was designed to indicate also the results of various anesthetic agents and techniques. The first 100 patients studied are included in this report, and consequently this represents only a preliminary report for a study which will require many more patients and corroborative experimental animal results. (An additional 12 patients are presented in whom studies of lipase content were done as a preliminary investigation of a trigger mechanism in the production of fat embolism.)

For the most part the patients studied were those having operations carried out on the lower extremities. Blood samples were obtained from near the site of the injury or surgery whenever possible. In the majority of cases, the blood samples were obtained from the inferior vena cava by means of an indwelling polyethylene catheter introduced through the contralateral femoral vein. Urine samples were obtained by means of an indwelling catheter introduced without lubricant. A record of the patient's physiological status and blood and urine samples were obtained at appropriate intervals before anesthesia, after induction of general anesthesia or after the development of spinal anesthesia, before and immediately after surgical manipulations, in the immediate postoperative period, and 24 and 48 hours postoperatively. To examine the blood and urine samples for their chylomicron content, a fluorescent dye, Phosphin 3R, was used. This dye is highly specific for chylomicrons and was introduced in this capacity by Peltier.[5] The procedure for studying the samples was as follows: Five ml. of the patient's blood or urine were added to a test tube containing 0.3 ml. of a 1:1,000 aqueous solution of phosphin 3R and 1 or 2 drops of heparin. This mixture was shaken thoroughly and then centrifuged for 20 minutes at 2,000 rpm. Drops of the supernatant fluid were then transferred to a glass slide and studied under the microscope, using a mercury vapor bulb as a light source for the ultraviolet rays.

In this study of the first 100 patients being investigated for fat embolism there were 57 patients who underwent procedures involving encroachment on the bone marrow and for whom diethyl ether was the principal anesthetic agent. The results were as follows: Three displayed circulating chylomicrons preoperatively. Twenty-four evidenced circulating chylomicrons after the induction of anesthesia and before the beginning of surgery. Twenty-six showed varying degrees of hyperchylomicronemia (from moderate increases to marked clumping) during the

surgical procedure, but without clinical evidences (changes in blood pressure, pulse, respiration) of any untoward incident. Fifteen displayed chylomicrons in the blood 24 hours postoperatively. Seven still had chylomicrons circulating 48 hours postoperatively.

In none of these patients was there any evidence in the postoperative period of a clinical picture of fat embolism. They were interviewed and examined daily for the 5 days following surgery for evidence of any of the clinical phases of embolism.

Twenty-four of these 100 patients studied underwent procedures involving encroachment upon the bone marrow for whom ether was not either a principal or a secondary agent. Of this number, the principal anesthetic agents were broken down as follows: for 9 patients, cyclopropane was the principal agent; in 10, spinal anesthesia was used; for 3 patients, nitrous oxide-oxygen (2-1) and an intermittent drip of 0.4 per cent Pentothal was used; and for the final 2, sciatic-femoral nerve blocks with 1.5 per cent Xylocaine was employed.

In these 24 patients the search for detectable circulating chylomicrons revealed the following: Nine displayed chylomicrons in the blood preoperatively. The same 9 continued to show chylomicrons in the blood after induction of anesthesia. Twelve displayed circulating chylomicrons during the surgical procedure. In 6 patients there were still circulating chylomicrons 24 hours postoperatively. Three still had a significant number and size of chylomicrons in the blood 48 hours postoperatively.

There was a total of 8 patients who underwent procedures not involving the bone marrow, but in which ether was the principal anesthetic agent. These procedures included 2 abdominal hysterectomies, 1 simple mastectomy, 1 repair of a ruptured patella, 2 tendon transplants, and 2 removals of tumor (lipoma) from the lower extremities. Of these 8 patients none displayed circulating chylomicrons preoperatively, but 2 evidenced a hyperchylomicronemia after the induction of anesthesia. During the operative procedure an additional 1 exhibited a significant number of chylomicrons. Twenty-four hours postoperatively there were 2 who still had a circulating quantity of chylomicrons, and they continued to display this for 48 hours postoperatively.

Seven patients were studied who underwent procedures which did not involve the bone marrow and in which diethyl ether was not the chief anesthetic agent utilized. Of these, 2 had circulating chylomicrons preoperatively and a third had a significant shower after the induction of anesthesia. This disappeared during the operative procedure. The original 2 patients continued to display the hyperchylomicronemia during the surgical procedure and for 24 hours postoperatively.

Also included in this study were 4 patients who were admitted to Parkland Memorial Hospital for treatment of injuries sustained because of automobile accidents. These patients' injuries did not require surgical intervention. Of these patients, only 1 displayed a marked hyperchylomicronemia on admission. This increase in circulating chylomicrons persisted for the first 4 days of this patient's hospitalization. Not unexpectedly, he died on the fifth hospital day, and at postmortem examination there was no evidence of fat embolic particles, either grossly or microscopically.

DISCUSSION

In this admittedly small initial series of 100 cases with no incidence of a clinical picture of fat embolism, positive conclusions cannot be drawn. The negative findings are significant, and a number of interesting features can be referred to. First, the occurrence of hyperchylomicronemia is very frequent. In 54 of the patients there was a significant display of circulating chylomicrons without evidence of physiological changes. In study of the individual patient protocols it came to be expected that patients with evidence of liver disease or a history of alcoholism would demonstrate fat in significant particle size and quantity during any operative procedure. Five of the patients had a clinical evidence of cirrhosis of the liver, and these patients uniformly displayed the greatest increase in chylomicron content, and this persisted throughout the 48 hour period of the study. In this brief presentation of findings the urine studies are not reported here, but it can be noted that the presence or absence of fat in the urine did not correlate with the degree of hyperchylomicronemia.

As predicted by other reports on fat embolism the application of a tourniquet to the extremity to be operated upon prevented an increase in the circulating chylomicrons, but this was temporary. Upon release of the tourniquet a marked shower of chylomicrons was demonstrated.

None of the patients in the series experienced shock during the operative procedures, and so this possible potentiating factor in fat embolism was not observed.

This study of 100 patients for varying operative procedures with various anesthetic agents gives direction for further investigative work in the phenomena of fat embolism. If the accepted clinical picture of this syndrome may be produced only by quantity and size of chylomicrons, there were a significant number of these patients who should have developed the complete picture. Failure to develop further evi-

dence of a fat embolic syndrome may indicate that other factors are necessary for its development. The trigger mechanism is one such theory of this mechanism which deals with the role of blood lipase in the pathogenesis of traumatic fat emboli.[2] In substance this theory is that a small amount of free fat may be liberated from the bone marrow at a fracture site. This small amount, in itself not lethal, in certain sensitive individuals may stimulate the production of an excess amount of blood lipase (from the lungs?) which in turn not only hydrolyzes the fat liberated from the fracture site, but also attacks and breaks down body depot fat which may then be carried to the pulmonary or cerebrovascular beds. Twelve patients who showed a significant increase in circulating chylomicrons demonstrated no increase in lipase in determinations made by the technique of Seligman and Nachlas.[9] This, too, is a very small series and is reported here only to show that other directions in the study of fat embolism are indicated.

In conclusion it would appear that anesthesia per se probably plays an insignificant role in the pathogenesis of fat embolism, although anesthesia in general and the fat solvent anesthetic agents in particular are related to the occurrence of a hyperchylomicronemia. Solely in the consideration of fat embolic phenomena no anesthetic agent or technique seems to be contraindicated.

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CASE REPORTS

Rhinogenic Exophthalmos

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EXOPHTHALMOS, occurring as a complication of diseases of the nose and paranasal sinuses, is a condition not commonly encountered at the present time. Prior to 1940, at which time the use of the chemotherapeutic and antibiotic agents became more widespread, the condition occurred much more frequently. Its decrease in incidence since that time is due primarily to more adequate treatment for infections (particularly the acute type) of the frontal sinus and ethmoid labyrinth. In conjunction with the employment of sulfonamides and antibiotics in the treatment of infections of the paranasal sinuses, considerable help has been gained by utilizing routine cultures and sensitivity studies before starting a specific drug. Other factors which have helped reduce orbital complications from sinusitis are recent advances in the understanding of nasal physiology, better allergy management, and more conservative surgery during acute infections. This may include infracting the middle turbinate, excising obstructive polyps in the middle meatus, or crushing a cystic middle turbinate.

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A review of pathogenesis of exophthalmos occurring as a complication of diseases of the nose and paranasal sinuses and of recent literature is followed by report of a case. Frequent and prolonged use of antibiotics masked the development of subperiosteal abscess in conjunction with bilateral exophthalmos secondary to destructive paranasal sinus polyposis.

Exophthalmos of noninfectious origin from the paranasal sinuses, particularly tumors, still occurs with approximately the same incidence.

Exophthalmos of rhinogenic origin may be classified as in table 1.

TABLE 1.—*Classification of Exophthalmos of Rhinogenic Origin.*

- I. Infections
  - A. Acute
    - 1. Ethmoiditis
    - 2. Frontal sinusitis
    - 3. Maxillary sinusitis
  - B. Chronic
    - 1. Mucocele
    - 2. Pyocele
    - 3. Destructive polyposis
- II. Tumors
  - A. Benign
    - 1. Osteoma
    - 2. Chondroma
    - 3. Fibroma
    - 4. Mixed tumors: questionably benign
    - 5. Adamantinoma
    - 6. Giant cell tumor
  - B. Malignant
    - 1. Carcinoma
      - a. Squamous cell
      - b. Cylindrical cell
      - c. Adenocarcinoma
    - 2. Sarcoma
      - a. Fibrosarcoma
      - b. Osteogenic sarcoma
      - c. Chondrosarcoma

There are several anatomical factors which predispose to the complication of exophthalmos following paranasal sinus disease. First of all, the orbit and the sinuses have three common bony walls: (1) the frontal sinus floor forms a portion of the orbital roof, (2) the maxillary antrum roof and the orbital floor is a common wall, and (3) the lamina papyracea of the ethmoid bone forms the lateral boundary of the ethmoid sinus and a considerable portion of the medial wall of the orbit. Also, a well developed sphenoid cell may form a small portion of the medial orbital wall near the apex. All of these common bony walls are quite thin, particularly the lamina papyracea, and are peculiarly susceptible to osteitis, pressure atrophy, and necrosis in suppurative and neoplastic diseases of the sinuses. In addition, dehiscences are common in these bony walls, particularly in the paper plate of the ethmoid. Furthermore, whereas most of the sinuses' venous drainage is through the sphenopalatine foramen terminating in the pterygoid plexus, some veins empty directly into the superior ophthalmic vein. There is a rich anastomosis between the sinuses' mucosal veins and the superior ophthalmic vein, the anterior facial vein, and the dural veins.

With the foregoing anatomical factors in mind, the pathogenesis of exophthalmos from sinus disease follows easily. Associated with suppuration in one of the sinus cavities, there may be osteomyelitis of the common bony wall followed by necrosis of the wall and orbital subperiosteal abscess. If the abscess perforates the orbital periosteum, orbital phlegmon results. This process may spread through a congenital dehiscence in the bone with little or no bone necrosis. This is particularly true in children. Likewise, orbital cellulitis may be secondary to thrombophlebitis through anastomosing veins with or without bone necrosis. The rich venous anastomosis explains the early edema of the eyelids in acute suppurative sinus disease. The proptosis resulting from suppurative sinusitis is accompanied by marked edema of the eyelids, pain, fever, chills, leukocytosis, and systemic reaction. The proptosis resulting from nonsuppurative sinus disease, that is, mucocele or tumors, is characterized by a very gradual, painless appearance of a mass in the orbit with displacement of the globe. The location of the mass in the orbit and the direction of displacement of the globe depends upon which sinus is primarily involved by the disease.

REVIEW OF RECENT LITERATURE

Cerabolini[2] reported 2 cases of fronto-ethmoidal mucocele which resulted in exophthalmos. He stated that the only satisfactory treatment is surgical. Williamson-Noble[14] reviewed the anatomy and pathogenesis of orbital complications, including exophthalmos, which result from diseases of the nose and paranasal sinuses. Albert[1] reported a case of progressive exophthalmos in a girl aged 16 years which was secondary to a very large benign giant cell tumor involving the whole sphenoid bone, the ethmoid labyrinth, and the nasal cavity. The patient died of extensive tuberculosis, and the giant cell tumor was diagnosed postmortem. Previous nasal biopsies had shown only chronic inflammation. Reed, Spiro, and Wilson[10] presented 4 cases of osteomyelitis of the maxilla in infants caused by penicillin resistant organisms. They stated that this type of infection re-

Fig. 1. The patient on January 3, 1955, showing exophthalmos and nasal distortion due to polyposis.

sults in the first 3 months of life from infections either in a milk tooth, a maxillary antrum, or a lacrimal sac. The orbital involvement includes chemosis, proptosis, and ophthalmoplegia. Cultures, sensitivity studies, and adequate doses of specific antibiotics should be employed.

Malatesta[6] reported a case of mucocele of the frontal sinus, which produced exophthalmos following a head injury. The author expressed the belief that such a mucocele most likely results from obliteration of the nasofrontal duct from the injury. Operation gave a good cosmetic and functional result in this case.

Strazzi[12] reported a case of fibrosarcoma in a 46 year old man which started apparently on the alveolar process of the maxilla, and eventually involved the maxillary antrum, the ethmoid sinuses, and the orbit. The orbital complications were exophthalmos, papilledema, and corneal perforation. The author stressed the importance of early, extensive electrosurgical excision of such lesions.

Fazakas[4] presented 10 cases of mucocele which resulted in exophthalmos; 8 of them originated from the anterior ethmoid cells, 1 from the frontal sinus, and 1 from the frontal and ethmoid cells. In 8 cases there was an enlargement of the blind spot, in addition to the usual signs of exophthalmos and diplopia. Six cases were cured by conservative measures, consisting of repeated aspiration and intranasal cocaine-adrenalin application, while 4 cases required surgical excision of the mucocele.

Kravitz[5] reveiwed 4 cases of frontal sinus mucocele, all of which were treated by surgical removal. He emphasized that the most important and most common symptom is the appearance of a globular mass at the upper and inner angle of the orbit. The mass has a cystic appearance; it can sometimes be dented; and its growth is slowly progressive. The eyeball is usually pushed downward and outward. Hemorrhagic cysts of the frontal sinus and orbital tumors must be ruled out. The treatment is surgical.

Fig. 2. Improvement in exophthalmos and nasal distortion August 10, 1955.

Muler[7] reviewed the case of a 3 year old child who, during the course of an acute ethmoiditis, developed an orbital abscess and irreducible exophthalmos. The orbital abscess ruptured spontaneously leaving a residual ectropion of the lower lid and a divergent squint. Systemic penicillin and streptomycin were given.

Chinaglia[3] reported a rare case of maxillary sinus mucocele which resulted in atrophy of the orbital floor and exophthalmos. The author believed the pathogenesis of such a mucocele to be cystic degeneration of the antral mucosa following a chronic inflammatory process.

Schlander[11] reported a case of frontal sinus mucocele causing exophthalmos in a 48 year old woman. This mucocele was unusual in that it presented as a tumor in the superior and lateral part of the orbital margin and caused small folds in the retina. It was treated successfully surgically.

Piquet, Ducrocq, and Francois[8] reviewed 70 cases of orbital complications of suppurative sinusitis. They

Fig. 3. Clouding of the frontal and ethmoid sinuses. Arrows denote erosion of the interfrontal septum and left paper plate of the ethmoid.

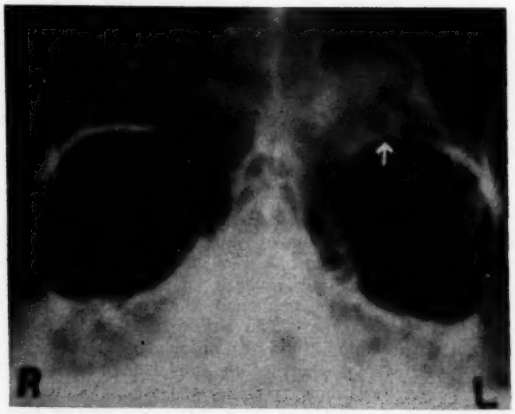

Fig. 4. Clouding of the frontal sinuses and antrums. The arrow denotes erosion of the left frontal floor.

discussed the importance of latent sinusitis in the production of orbital infections and discussed the pathogenesis of sinusitis, periostitis, subperiosteal abscess, and orbital cellulitis.

Rebello[9] reported a case of frontal mucocele causing exophthalmos, successfully treated by surgery. He reviewed the pathogenesis, diagnosis, and complications.

Tamari and O'Neil[13] reported 4 cases of frontal mucocele (clinical diagnosis). All cases were operated on; 3 cases confirmed the clinical impression of mucocele, and carcinoma was found in the fourth case.

REVIEW OF CASE

E. B. C., a 38 year old accountant, was first seen in November, 1952, giving the following history: He had been in good health most of his life except for recurrently discharging ears since childhood. In approximately 1946 he began to have perennial allergic rhinitis symptoms with frequent attacks of sneezing, nasal blockage, watery rhinorrhea, and tearing. This was followed by the rapid development of nasal polyposis. Prior to my initial examination in November, 1952, he had had at least 8 polypectomies, and from 1952 to 1955 it was necessary to do 8 more polypectomies. Excision of polyps, particularly on the right side, was nearly always attended by excessive bleeding.

He had received an extensive allergy evaluation and had been under adequate allergic management for several years, but appeared somewhat refractory to this regimen. On intradermal testing he revealed a 4 plus reaction to bermuda grass, 2 plus reactions to careless weed and elm trees, and 1 plus reactions to giant ragweed, hackberry, pecan, goose feathers, house dust, mattress dust, wheat, beef, beans, celery, onion, white potato, and peanut. The allergenic foods were eliminated from his diet, and he was given desensitizing injections of the inhalent allergens.

In November, 1954, he began to have blurred vision and stated that his left eye had gradually become prominent over several weeks' time. Ophthalmological consultation revealed 20/20 vision without correction in both eyes. Both eyes appeared prominent, especially the left eye. Readings with the Krahn exophthalmometer revealed 26 mm. in the right eye, and 28 mm. in the left eye. There was redness and edema of the eyelids on the left, as well as conjunctival injection over the insertion of the medial rectus muscle.

There was limitation of motion of the left eye to the right and apparent weakness of the left medial rectus, and the left inferior and superior oblique muscles. Retrocompression of the globe showed a definite increase in orbital resistance on the left, although no mass could be palpated. Visual fields were normal, as were the fundi. By December 3, there was beginning proptosis of the right eye also, with definite limitation of motion of all muscles supplied by the third cranial nerve. The patient complained of blurring of vision, diplopia, and pain on moving the eyes.

The differential diagnosis of the exophthalmos considered at this time was orbital pseudotumor, intracranial tumor, and destructive polyposis of sinus origin. Mucocele or pyocele was thought to be ruled out by roentgenograms of the sinuses.

Because of rapid progression of his symptoms he was hospitalized on January 3, 1955.

At the time of admission he appeared to be a well developed, moderately obese white man, appearing chronically ill. There was marked swelling of the eyelids on the left as well as the proptosis bilaterally. Both nasal cavities were filled with large polyps which extended into the nasopharynx. The blood pressure was 170/110. The heart, lungs, and abdomen were normal. The neurological examination was within normal limits. A bilateral closed cerebral arteriogram was performed under Pentothal anesthesia with normal results. A few days later a pneumoencephalogram was accomplished, revealing a normal ventricular system.

In view of the negative neurological work-up, it was decided to explore the left orbit through an external frontoethmoid incision. On elevation of the periosteum over the anterior lacrimal crest, thick yellow pus welled into the wound and a large subperiosteal abscess cavity filled with many polyps was entered. It was apparent that the following structures had been eroded by the destructive polyposis process: the orbital plate of the maxilla, the lacrimal bone, the frontal sinus floor, the lamina papyracea of the ethmoid, the interfrontal septum, the left nasal bone, the front face of the left sphenoid, and the posterior half of the nasal septum. All of the sinuses were filled with large, firm polyps. The orbital periosteum apparently had not been eroded. The abscess was evacuated, and polyps and thickened mucosa were exenterated from all of the left paranasal sinuses. A drain was left in place extending from the left frontal into the left nasal cavity, and the periosteum and skin were closed with interrupted sutures.

Culture of the abscess revealed Staphylococcus aureus which was sensitive to chlortetracycline, chloramphenicol, and tetracycline. The pathological diagnosis of the tissue removed was polyps showing chronic inflammatory reaction.

There was marked immediate improvement in the exophthalmos and in the blurring of vision. After an initial improvement, the patient's symptoms gradually returned, and by May 10 the exophthalmos reading for both eyes was 28 mm. with marked weakness of all muscles supplied by the third nerve. At that time a right Caldwell-Luc operation and transantral ethmosphenoidectomy was performed, exenterating all polyps and thickened mucosa. Dehiscences were found in the right lamina papyracea of the ethmoid and in the anterior face of the right sphenoid. Following this procedure the patient rapidly improved and has maintained his progress to date.

On May 20, 1955 exophthalmometer readings were 26 mm. in the right eye and 25 mm. in the left eye. At that time there was no blurring of vision or discomfort on reading.

The final diagnosis was bilateral exophthalmos secondary to destructive paranasal sinus polyposis with subperiosteal abscess on the left.

COMMENT

Surgery in this patient was delayed for a long period of time because of the original impression of granuloma or pseudotumor of the orbit. It was thought that since many such cases clear spontaneously, surgical exploration of the orbit had little to offer the patient and might make the condition worse. It is also believed that in this patient the frequent and prolonged use of antibiotics definitely acted as a masking mechanism upon the development of the

subperiosteal abscess. It is believed that adequate surgical management as well as adequate allergy care is necessary to obtain a good result in such patients.

SUMMARY

The pathogenesis of exophthalmos secondary to diseases of the nose and paranasal sinuses is reviewed and classified. An illustrative case is presented.

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♦ Dr. Baldwin, Department of Otolaryngology, Southwestern Medical School, Dallas.

Correction: Tuberculosis Editorial

The second sentence of the second paragraph in the editorial entitled "Importance of Early Detection of Pulmonary Tuberculosis" by Dr. Carlos Juan Quintanilla (page 656, August, *Texas State Journal of Medicine*) should read as follows: "Unfortunately, many times patients do not seek medical care until these symptoms have persisted for weeks and sometimes for months, and by the time they are diagnosed their disease has passed the minimal stage and become moderately advanced or even far advanced."

Rabies in Pet Skunks

Rabies continues to be a serious problem in skunks, including the descented ones used as pets, according to the State Department of Health. To avoid this hazard, skunks to be pets should be born in captivity of parents known to be free of rabies and isolated from any source of infection until they can be immunized. After wild skunks are observed in isolation for the required 6 month period, they usually cannot be successfully domesticated.

★ Coming Meetings

Texas Medical Association, Fort Worth, April 9-12, 1960 (Executive Board, Sept. 27, 1959). Dr. F. W. Yeager, Corpus Christi, Pres.; Mr. C. Lincoln Williston, 1801 North Lamar Blvd., Austin, Exec. Secy.

American Medical Association, Dallas (Clinical Session), Dec. 1-4, 1959. Dr. Louis M. Orr, Orlando, Fla., Pres.; Dr. F. J. L. Blasingame, 535 North Dearborn, Chicago 10, Exec. Vice-Pres.

Current Meetings

SEPTEMBER

American Association of Obstetricians and Gynecologists, Hot Springs, Va., Sept. 10-12, 1959. Dr. Joe V. Meigs, Boston, Pres.; Dr. E. Stewart Taylor, University of Colorado School of Medicine, 4200 E. 9th, Denver, Secy. September meeting by invitation only.

American College of Gastroenterology, Los Angeles, Sept. 20-26, 1959. Dr. Frank L. Borrelli, New York, Pres.; Mr. Daniel Weiss, 33 West 60th, New York 23, Executive Director.

American College of Surgeons, Atlantic City, Sept. 28-Oct. 2, 1959. Dr. Newell W. Philpott, Montreal, Pres.; Dr. Michael L. Mason, 40 E. Erie, Chicago 11, Secy.

American Society of Clinical Pathologists, Chicago, Sept. 7-11, 1959. Dr. Edward L. Burns, Toledo, Pres.; Mr. Claude E. Wells, 2052 N. Orleans, Chicago 14, Executive Secy.

International College of Surgeons, U. S. Chapter, Chicago, Sept. 13-17, 1959. Dr. Edward L. Compere, Chicago, Pres.; Dr. Ross T. McIntire, 1516 Lake Shore Dr., Chicago, Executive Director.

Southwest Regional Cancer Conference, Fort Worth, Sept. 20, 1959. Dr. W. S. Lorimer, Jr., Fort Worth, Chm.; Mrs. Ira Frances Ball, 264 W. 11th, Fort Worth, Secy.

Eighth District Society, Victoria, Sept. 19, 1959. Dr. Joseph Magliolo, Dickinson, Pres.; Dr. M. Warren Hardwick, 829 E. Mulberry, Angleton, Secy.

Eleventh District Society, Palestine, Sept. 9, 1959. Dr. Ben Wilson, Tyler, Pres.; Dr. Phillip W. Taylor, 833 S. Beckham, Tyler, Secy.

OCTOBER

American Academy of Ophthalmology and Otolaryngology, Chicago, Oct. 11-16, 1959. Dr. John H. Dunnington, New York, Pres.; Dr. W. L. Benedict, 15 Second St. S.W., Rochester, Minn., Secy.

American Academy of Pediatrics, Chicago, Oct. 5-8, 1959. Dr. James C. Overall, Nashville, Pres.; Dr. E. H. Christopherson, 1801 Hinman Ave., Evanston, Ill., Executive Secy.

American Cancer Society, New York, Oct. 28-29, 1959. Dr. Eugene P. Pendergrass, Philadelphia, Pres.; Mr. Granville Whittlesey, 521 West 57th St., New York 19, Secy.

American Heart Association, Philadelphia, Oct. 26-27, 1959. Dr. Francis L. Chamberlain, San Francisco, Pres.; Mr. William F. McGlone, 44 E. 23rd, New York 10, Secy.

American Public Health Association, Atlantic City, Oct. 19-23, 1959. Dr. Leona Baumgartner, New York, Pres.; Dr. Berwyn F. Mattison, 1790 Broadway, New York 19, Executive Secy.

American Society of Anesthesiologists, Bal Harbour, Fla., Oct. 5-9, 1959. Dr. Daniel C. Moore, Seattle, Pres.; Dr. J. E. Remlinger, Jr., 188 W. Randolph, Chicago 1, Secy.

Southern Psychiatric Association, Dallas, Oct. 4-6, 1959. Dr. J. L. Knapp, Dallas, Pres.; Dr. Richard Proctor, Winston-Salem, N. C., Secy.

Tri-State Medical Assembly, Shreveport, La., Oct. 2-3, 1959. Dr. R. B. Langford, Shreveport, Pres.; Dr. J. W. Wilson, Jr., 940 Margaret Place, Shreveport, Secy.

Texas Academy of General Practice, Galveston, Oct. 4-7, 1959. Dr. Charles E. Oswalt, Jr., Fort Stockton, Pres.; Mr. Donald C. Jackson, 1905 N. Lamar, Austin, Executive Secy.

Texas Pediatric Society, Houston, Oct. 23-24, 1959. Dr. Bruce A. Knickerbocker, Dallas, Pres.; Dr. James N. Walker, 5216 W. Freeway, Fort Worth, Secy.

Texas Society on Aging, Dallas, Oct. 16-17, 1959. Mr. Herbert Shore, Dallas, Pres.; Mrs. William B. Ruggles, 3701 Stratford, Dallas, Secy.-Treas.

Texas Surgical Society, Houston, Oct. 4-6, 1959. Dr. Albert Hartman, San Antonio, Pres.; Dr. G. V. Brindley, Jr., Scott and White Clinic, Temple, Secy.

Oklahoma City Clinical Society Conference, Oklahoma City, Oct. 26-28, 1959. Dr. Ralph A. Smith, Oklahoma City, Pres.; Miss Alma F. O'Donnell, 503 Medical Arts Bldg., Oklahoma City 2, Executive Secy.

Texas State Board of Examiners in Basic Sciences, Austin, Oct. 12-13, 1959. Henry B. Hardt, Ph.D., Fort Worth, Pres.; Mrs. Betty J. Anderson, Chief Clerk, 303 East Seventh, Austin.

National and Regional

American Academy of Allergy, Hollywood-by-the-Sea, Fla., Jan. 11-13, 1960. Dr. Francis C. Lowell, Boston, Pres.; Dr. Joseph Noah, 100 N. Euclid Ave., St. Louis 8, Mo., Secy.

American Academy of Dermatology and Syphilology, Chicago, Dec. 5-10, 1959. Dr. A. C. Cipollaro, New York, Pres.; Dr. Robert R. Kierland, Mayo Clinic, Rochester, Minn., Secy.

American Academy of General Practice, Philadelphia, March 19-24, 1960. Dr. Fount Richardson, Fayetteville, Ark., Pres.; Mr. Mac F. Cahal, Volker Blvd. at Brookside, Kansas City 12, Executive Secy.

American Association for Maternal and Infant Health. Dr. M. Edward Davis, Chicago, Pres.; Mrs. Patricia Dorr, 116 S. Michigan Ave., Chicago 3, Executive Director.

American Association for Thoracic Surgery, Miami Beach, May 11-13, 1960. Dr. William E. Adams, Chicago, Pres.; Dr. Hiram T. Langston, 7730 Corondelet Ave., St. Louis 5, Secy.

American Association of Genito-Urinary Surgeons. Dr. John A. Taylor, New York, Pres.; Dr. W. J. Engel, 2020 E. 93rd St., Cleveland 6, Secy.

American College of Allergists, Miami Beach, Feb. 28-March 5, 1960. Dr. Cecil M. Kohn, Kansas City, Pres.; Mr. Eloi Bauers, 2160 Rand Tower, Minneapolis, Executive Vice-Pres.

American College of Chest Physicians, Miami Beach, Fla., June 8-12, 1960. Dr. Seymour M. Farber, San Francisco, Pres.; Mr. Murray Kornfeld, 112 E. Chestnut, Chicago 11, Executive Director.

American College of Obstetricians and Gynecologists, Cincinnati, April 3-6, 1960. Dr. John I. Brewer, Chicago, Pres.; Mr. Donald F. Richardson, P. O. Box 749, Chicago 90, Executive Secy.

American College of Physicians, San Francisco, April 4-8, 1960. Dr. Howard P. Lewis, Portland, Ore., Pres.; Mr. E. R. Loveland, 4200 Pine, Philadelphia 4, Secy.

American College of Radiology, New Orleans, Feb. 3-6, 1960. Dr. Lawrence Reynolds, 10 Peterboro, Detroit, Pres.; Mr. W. C. Stronach, 20 N. Wacker Dr., Chicago 6, Executive Director.

American Congress of Physical Medicine and Rehabilitation. Dr. Arthur C. Jones, Portland, Ore., Pres.; Dorothea C. Augustin, 30 N. Michigan Ave., Chicago 2, Executive Secy.

American Dermatological Association, Boca Raton, April 8-12, 1960. Dr. Marion B. Sulzberger, New York, Pres.; Dr. Wiley M. Sams, 25 Southeast 2nd Ave., Miami, Secy.

American Gastroenterological Association, New Orleans, March 31-April 2, 1960. Dr. H. Marvin Pollard, Ann Arbor, Pres.; Dr. Wade Volwiler, Secy., University of Washington School of Medicine, Seattle 5.

American Gynecological Society, Williamsburg, Va., May 30-June 1, 1960. Dr. Karl H. Martzloff, Portland, Pres.; Dr. A. A. Marchetti, 3800 Reservoir Rd. N.W., Washington 7, D. C., Secy.

American Hospital Association, San Francisco, Aug. 29-Sept. 1, 1960. Dr. Russell A. Nelson, Baltimore, Md., Pres.; Dr. Edwin L. Crosby, 18 E. Division Street, Chicago, Executive Director.

American Laryngological, Rhinological, and Otological Society, Miami Beach, March 15-17, 1960. Dr. Theodore E. Walsh, St. Louis, Pres.; Dr. C. S. Nash, 708 Medical Arts Bldg., Rochester, N. Y., Secy.

American Neurological Association, Boston, June 13-15, 1959. Dr. Derek Denny-Brown, Boston, Pres.; Dr. Melvin D. Yahr, New York Neurological Institute, 710 W. 168th Street, New York 32, Secy.

American Ophthalmological Society, Colorado Springs, May 16-18, 1960. Dr. A. B. Reese, New York, Pres.; Dr. M. C. Wheeler, 30 W. 59th, New York 19, Secy.

American Orthopaedic Association, May 30-June 2, 1960. Dr. John Royal Moore, Philadelphia, Pres.; Dr. Lee Ramsay Straub, 535 East 70th St., New York 21, Secy.

American Pediatric Society, Swampscott, Mass., May 5-6, 1960. Dr. Samuel Z. Levine, New York, Pres.; Dr. A. C. McGuinness, Room 1036, 2800 Quebec St., N.W., Washington 8, D. C., Secy.

American Proctologic Society, Houston, April 25-27, 1960. Dr. H. R. Reichman, Salt Lake City, Pres.; Dr. Norman D. Nigro, 10 Peterboro, Detroit 1, Secy.

American Psychiatric Association, Atlantic City, N. J., May 9-13, 1960. Dr. William Malamud, New York, Pres.; Dr. C. H. Hardin Branch, 156 Westminister Ave., Salt Lake City, Secy.

American Surgical Association, White Sulphur Springs, W. Va., April 3-6, 1960. Dr. Warren H. Cole, Chicago, Pres.; Dr. William Altemeier, Cincinnati General Hospital, Cincinnati 29, Secy.

American Urological Association, Chicago, May 16-19, 1960. Dr. William M. Coppridge, Durham, N. C., Pres.; Mr. William P. Didusch, 1120 N. Charles St., Baltimore 1, Executive Secy.

Association of American Physicians and Surgeons, St. Louis, Sept. 29-Oct. 1, 1960. Dr. Louis Wegryn, Elizabeth, N. J., Pres.; Mr. Harry E. Northam, 185 N. Wabash Ave., Chicago 1, Executive Director.

National Tuberculosis Association, Los Angeles, May 15-20, 1960. Dr. H. McLeod Riggins, New York, Pres.; Mrs. Wallace B. White, 651 Marlborough Rd., Brooklyn, Secy.

Radiological Society of North America, Chicago, Nov. 15-20, 1959. Dr. Lawrence L. Robbins, Boston, Pres.; Dr. Donald S. Childs, 713 E. Genesee, Syracuse 2, N.Y., Secy.

South Central Association of Blood Banks, Albuquerque, March or April, 1960. Dr. John B. Alsever, Phoenix, Pres.; L. Ruth Guy, Ph.D., Room 1101, Stoneleigh Hotel, Dallas, Secy.

Southern Medical Association, Atlanta, Ga., Nov. 16-19, 1959. Dr. Milford O. Rouse, Dallas, Pres.; Mr. V. O. Foster, 2601 Highland Avenue, Birmingham 5, Executive Secy.

Southern Surgical Association, Hot Springs, Va., Dec. 8-10, 1959. Dr. George C. Finney, Baltimore, Pres.; Dr. John D. Martin, Jr., Emory University, Ga., Secy.

Southwest Allergy Forum, Oklahoma City, April 2-5, 1960. Dr. Johnny A. Blue, Oklahoma City, Pres.; Dr. George L. Winn, Suite 104, Lister Medical Building, 430 Northwest Twelfth St., Oklahoma City, Secy.

Southwestern Medical Association, Roswell, N. Mex., Nov. 5-7, 1959. Dr. A. R. Clauser, Albuquerque, Pres.; Dr. M. D. Thomas, 1501 Arizona St., 12-D, El Paso, Secy.

Southwestern Society of Nuclear Medicine, New Orleans, March 14-15, 1960. Dr. Herbert C. Allen, Jr., Houston, Pres.; Dr. J. R. Maxfield, Jr., 2711 Oak Lawn Avenue, Dallas, Secy.

Southwestern Surgical Congress, Las Vegas, Nev., March 28-31, 1960. Fort Smith, Ark., Dr. Fred H. Krock, Fort Smith, Ark., Pres.; Mary O'Leary, 813 Medical Arts Bldg., Oklahoma City, Exec. Secy.

United States-Mexico Border Public Health Association, Hermosillo, Sonora, Mex., April 4-8, 1960. Dr. Adan Mercado Cerada, Ciudad Victoria, Mexico, Pres.; Dr. Jorge Román, 243 United States Court House, El Paso, Secy.

State

Private Clinics and Hospitals Association of Texas, Dallas, December, 1959. Dr. Jack S. Maxfield, Dallas, Pres.; Mr. J. J. George, Philips-Dupre Hospital, Levelland, Executive Secy.

Texas Academy of Internal Medicine, San Antonio, Dec. 4-5, 1959. Dr. Merton M. Minter, San Antonio, Pres.; Dr. Hugo T. Engelhardt, 1216 Main, Houston, Secy. Meetings restricted to members.

Texas Air-Medics Association, Fort Worth, April 9-11, 1960. Dr. W. W. Sumner, Fort Worth, Pres.; Dr. C. F. Miller, P. O. Box 1338, Waco, Secy.

Texas Association for Mental Health, Austin, Feb. 18-20, 1960. Paul Southern, Ph.D., Abilene, Pres.; Mr. John Lane, 2410 San Antonio, Austin, Executive Director.

Texas Association of Obstetricians and Gynecologists, Austin, February, 1960. Dr. Maurice Meynier, Houston, Pres.; Dr. Hugh W. Savage, 815 Fifth Ave., Fort Worth, Secy.

Texas Association of Public Health Physicians, Fort Worth, April 10, 1960. Dr. Fred K. Laurentz, Houston, Pres.; Dr. B. M. Primer, 2708 Rio Grande, Austin, Secy.

Texas Chapter, American College of Chest Physicians, Fort Worth, April 10, 1960. Dr. L. M. Shefts, San Antonio, Pres.; Dr. John W. Middleton, 900 Strand, Galveston, Secy.

Texas Club of Internists. Dr. W. W. Bondurant, Jr., San Antonio, Pres.; Dr. T. Haynes Harvill, Medical Arts Building, Dallas 1, Secy.

Texas Dermatological Society, Fort Worth, April 11, 1960. Dr. Edmund N. Walsh, Fort Worth, Pres.; Dr. D. Shelton Blair, 1609 Medical Arts Building, Dallas, Secy.

Texas Division, American Cancer Society, Austin, Dec., 1959. Dr. John A. Wall, Houston, Pres.; Mr. Curt W. Reimann, 5014 Bull Creek Rd., Austin 3, Executive Director.

Texas Diabetes Association, Fort Worth, April 10, 1960. Dr. Ralph Greenlee, Midland, Pres.; Dr. Warren W. Moorman, 901 W. Leuda, Fort Worth, Secy.

Texas Heart Association, Fort Worth, April 9-10, 1960. Dr. Robert E. Leslie, El Campo, Pres.; Mr. Ernest T. Guy, 404 Jesse H. Jones Library Building, Houston 25, Executive Director.

Texas Hospital Association, Dallas, May 10-12, 1960. Mr. F. S. Walters, Jr., Amarillo, Pres.; Mr. O. Ray Hurst, 2208 Main, Dallas, Executive Director.

Texas Industrial Medical Association, Fort Worth, April 10, 1960. Dr. Max E. Johnson, San Antonio, Pres.; Dr. J. G. Burdick, P. O. Box 472, Pasadena, Secy.

Texas Neuropsychiatric Association, Fort Worth, April 10, 1960. Dr. Hamilton Ford, Galveston, Pres.; Dr. E. Ivan Bruce, 1014 Strand, Galveston, Secy.

Texas Ophthalmological Association, Fort Worth, April 11-12, 1960. Dr. Max Baldridge, Texarkana, Pres.; Dr. James H. Scruggs, 2223 Austin Ave., Waco, Secy.

Texas Orthopedic Association, Fort Worth, April 11, 1960. Dr. David M. Cameron, El Paso, Pres.; Dr. Margaret Watkins, 3503 Fairmount, Dallas, Secy.

Texas Otolaryngological Association, Fort Worth, April 12, 1960. Dr. Herbert H. Harris, Houston, Pres.; Dr. Louis E. Adin, 3707 Gaston, Dallas, Secy.

Texas Physical Medicine and Rehabilitation Society, Fort Worth, April 12, 1960. Dr. Edward M. Krusen, Dallas, Pres.; Dr. Oscar Selke, Medical Professional Building, Houston, Secy.

Texas Proctologic Society, Dallas, February, 1960. Dr. Alvin Baldwin, Dallas, Pres.; Dr. H. Gray Carter, 915 St. Joseph St., Dallas, Secy.

Texas Public Health Association, Galveston, Feb. 22-24, 1960. Mr. Tom Warren, Austin, Pres.; Mr. Joseph N. Murphy, Jr., Box 4012, Austin 51, Executive Secy.

Texas Radiological Society, Houston, January, 1960. Dr. Herman C. Sehested, Fort Worth, Pres.; Dr. R. P. O'Bannon, 1216 Pennsylvania, Fort Worth, Secy.

Texas Rheumatism Association, San Antonio, Dec. 4, 1959. Dr. Warren W. Moorman, Fort Worth, Pres.; Dr. J. Morris Horn, 3707 Gaston, Dallas, Secy.

Texas Society of Anesthesiologists, Fort Worth, April 10, 1960. Dr. David O. Johnson, Austin, Pres.; Dr. M. T. Jenkins, Parkland Hospital, Dallas, Secy.

Texas Society of Athletic Team Physicians, Fort Worth, April 9, 1960. Dr. W. Harry Ledbetter, Wichita Falls, Pres.; Dr. Jack Brannon, 2715 Fannin, Houston, Secy.

Texas Society of Gastroenterologists and Proctologists, Fort Worth, April 10, 1960. Dr. Marcel Patterson, Galveston, Pres.; Dr. A. C. Broders, Jr., Scott and White Clinic, Temple, Secy.

Texas Society of Ophthalmology and Otolaryngology, Fort Worth, Dec. 4-5, 1959. Dr. James T. Robison, Austin, Pres.; Dr. Edwin G. Grafton, 4319 Oak Lawn, Dallas, Secy.

Texas Society of Pathologists, Inc., Fort Worth, April, 1960. Dr. Jarrett Williams, Abilene, Pres.; Dr. Sylvia Johns, 414 Navarro St., San Antonio, Secy.

Texas Society of Plastic Surgeons, Fort Worth, April 9, 1960. Dr. Willard Schussler, El Paso, Pres.; Dr. Raymond Brauer, 6615 Travis, Houston, Secy.

Texas Traumatic Surgical Society, Fort Worth, April 10, 1960. Dr. W. D. Marrs, Fort Worth, Pres.; Dr. W. E. Crump, 1300 8th St., Wichita Falls, Secy.

Texas Tuberculosis Association, Abilene, March, 1960. Mr. Zeb Rike, McAllen, Pres.; Miss Pansy Nichols, P. O. Box 6158, Austin 21, Executive Director.

Texas Urological Society, Waco, January, 1960. Dr. William Heck, San Antonio, Pres.; Dr. Moreton A. Magid, 1525 Colcord Ave., Waco, Secy.

District

First District Society. Dr. H. D. Garrett, El Paso, Pres.; Dr. E. S. Crossett, 1501 Arizona St., El Paso, Secy.

Second District Society, Lamesa. Dr. Oscar E. Rhode, Colorado City, Pres.; Dr. John H. Chinn, Jr., Colorado City, Secy.

Third District Society, Lubbock, 1960. Dr. Grady M. Wallace, Lubbock, Pres.; Dr. H. Fred Johnson, 2308 W. Eighth, Amarillo, Secy.

Fourth District Society, San Angelo, May 16, 1959. Dr. W. L. Smith, San Angelo, Pres.; Dr. S. Braswell Locker, 1501 11th St., Brownwood, Secy.

Fifth and Sixth Districts Society, Corpus Christi, July 8-19, 1960. Dr. John W. Chriss, Pres.; Dr. James Gabbard, 1001 Louisiana, Corpus Christi, Secy.

Seventh District Society. Dr. Robert N. Snider, Austin, Pres.; Dr. Richard Lucas, 502 W. 13, Austin, Secy.

Ninth District Society, Brenham, March 17, 1960. Dr. Haden E. McKay, Humble, Pres.; Dr. Lyman C. Blair, 1212 Rothwell, Houston, Secy.

Tenth District Society, Beaumont, 1959. Dr. Albert L. Delaney, Liberty, Pres.; Dr. Irving M. Richman, 3280 Fannin St., Beaumont, Secy.

Twelfth District Society, Marlin, January 12, 1960. Dr. Paul H. Mitchell, Corsicana, Pres.; Dr. J. M. Brown, Torbett Clinic, Marlin, Secy.

Thirteenth District Society, Fort Worth, Fall, 1959. Dr. Frank S. Browne, Wichita Falls, Pres.; Dr. R. D. Moreton, 1217 W. Cannon, Fort Worth, Secy.

Fifteenth District Society. Dr. Charles Wise, Naples, Pres.; Dr. George Bennett, 402 S. Bolivar, Marshall, Secy.

Clinics

Blackford Memorial Cancer Lectures, Denison, Nov. 3, 1959 (tentative). Dr. R. G. Gerard, 509 S. Mirick, Denison, Chm.

Dallas Southern Clinical Society, Dallas, March 21-23, 1960. Dr. T. Haynes Harvill, Dallas, Pres.; Millard J. Heath, 433 Medical Arts Bldg., Dallas 1, Executive Officer.

International Medical Assembly of Southwest Texas, San Antonio, Jan. 25-27, 1960. Dr. Alvin O. Severance, San Antonio, Pres.; S. E. Cockrell, 202 W. French Place, San Antonio, Exec. Secy.

New Orleans Graduate Medical Assembly, New Orleans, March 7-10, 1960. Dr. Ambrose H. Storck, New Orleans, Pres.; Mrs. Irma B. Sherwood, 430 Tulane Ave., New Orleans 12, Executive Secy.

North Texas-Southern Oklahoma Fall Clinical Conference. Dr. Frank J. Lee, 1300 8th, Wichita Falls, Chm.

Postgraduate Medical Assembly of South Texas, Houston, July 18-20, 1960. Dr. C. Alsworth Calhoun, Houston, Pres.; Mrs. W. H. Dahme, 412 Jesse H. Jones Library Bldg., Houston 25, Exec. Secy.

Board Examinations

Texas State Board of Medical Examiners, Fort Worth, Dec. 3-5, 1959. Dr. M. H. Crabb, Fort Worth, Secy.; Mrs. Luanna Reddin, 1714 Medical Arts Bldg., Fort Worth, Assistant Secy.

MEDICOLEGAL NOTES

Laws Governing "Substitution" Amended by Recent Legislature

Although the problem of "substitution," the dispensing of a drug or brand of drug other than that prescribed by the physician, has never been the acute issue in Texas it has been in other areas, physicians and pharmacists throughout this state have been aware of the practice and its inherent dangers. They have been constantly on guard to deter such practice.

During the regular session of the past Legislature, amendments were made to the Pharmacy Laws, Article 4542a. Of great significance to physicians and pharmacists alike were provisions dealing with the act of "substitution." Previously, the Texas State Board of Pharmacy had inadequate authority to cope with or control this comparatively new problem confronting the medical and pharmaceutical professions. But with the enactment of certain amendments to the Pharmacy Laws, it is felt that today, in Texas, the "substitution" problem can be dealt with effectively.

The grounds upon which a pharmacist may have his license canceled, revoked, or suspended are set forth in section 12 of Article 4542a of the Pharmacy Law. A new subsection, which is entitled (h), sets forth that such grounds include the pharmacist engaging in the ". . . act of substitution as that term is hereinafter defined . . . ."

The definition of "substitution" as stated in the statute is as follows:

> The term "substitution" as used in this Act shall mean the dispensing of a drug or a brand of drug other than that which is ordered or prescribed without the express consent of the orderer or prescriber. If the consent of the orderer or prescriber for substitution by the licensee is obtained, a notation shall be made by the licensee on the prescription stating that such consent has been obtained and by whom such consent was given, and such notation shall, in addition, specify the drug or brand of drug so substituted.

While this definition of "substitution" is self-explanatory, of particular importance is the fact that the dispensing of

a brand of drug as well as the dispensing of a drug other than that prescribed shall constitute the act of "substitution." This should result in clarifying an area which has been troublesome from a legal standpoint in "substitution" cases. Prior to the enactment of this amendment it was difficult, if not impossible, to uphold any punitive steps taken when the "substitution" consisted of dispensing another brand of drug than that called for in the prescription when the actual chemical composition of the two drugs involved were essentially identical.

The question has arisen as to what effect the enactment of these provisions in regard to "substitution" will have upon existing hospital formularies. As the whole basis for the existence of a "formulary" for a hospital is predicated upon the agreement of the medical staff to consent to certain phases of substitution in regard to the use of certain particular brands of drugs, the necessary consent of the prescriber which the statute requires has been obtained by the very adoption of the formulary system. Consequently, the formulary system used by many hospitals today in Texas will not be affected so long as any substitution done is within the area provided for by the formulary.

The Texas State Board of Pharmacy is aware of the fact that the physician is often the first individual to become aware that a particular pharmacist is engaging in "substitution." As this board is the body charged with the responsibility of enforcing our laws in regard to "substitution" violations, its members would welcome information from physicians concerning any violations. In fact, the cooperation of the physicians of Texas in reporting cases of "substitution" is vital in helping control a practice which if allowed to go unchecked could endanger the health and even the life of many patients.

—PHILIP R. OVERTON, LL.B., Austin.

MEDICAL MEETINGS

M. D. Anderson to Sponsor Clinical Conference, November 13-14

The fourth annual clinical conference of the University of Texas M. D. Anderson Hospital and Tumor Institute, "Tumors of the Head and Neck," will be held November 13-14 at the Texas Medical Center in Houston.

Guest speakers for the conference will be Dr. Robert L. Brown, assistant professor of surgery, Emory University, Atlanta, Ga.; Dr. Calvin T. Klopp, assistant clinical professor of surgery, George Washington University School of Medicine, Washington, D. C.; Dr. Lewis W. Guiss, associate clinical professor of surgery, University of Southern California School of Medicine, Los Angeles; Dr. Robert C. Hickey, associate professor of surgery, State University of Iowa College of Medicine, Iowa City; Dr. John V. Brady, clinical professor of surgery, Temple University School of Medicine, Philadelphia; Dr. Justin J. Stein, professor of radiology, School of Medicine, University of California Medical Center, Los Angeles; Dr. Murray M. Copeland, professor of oncology, Georgetown University School of Medicine, Washington, D. C.

Among the various panel discussions to be presented by the staff of the M. D. Anderson Hospital and Tumor Institute will be the following: diagnosis of head and neck cancer, cancer of the intra-oral cavity, cancer of the pharynx and nasopharynx, cancer of the paranasal sinuses, and cancer of the larynx. Subjects of individual addresses will be the present concepts in head and neck cancer, problems of reconstructive surgery in cancer of the head and neck regions, report on perfusion of head and neck tumors, the evaluation of supervoltage roentgen therapy for patients with head and neck cancers, extension of carcinoma through peripheral nerves in the head and neck regions, squamous papilloma of nasal mucosa, and wound sterilization by locally applied chemotherapeutic agents.

For registration blanks and further information, those interested may write the University of Texas, M. D. Anderson Hospital and Tumor Institute, Texas Medical Center, Houston 25.

A $5 registration fee must accompany the registration for 10 hours' credit in the Academy of General Practice. Those desiring credit should register in advance with the University of Texas Postgraduate School of Medicine, Jesse Jones Library Building, Houston.

Psychosomatic Medicine Academy To Hold Meeting in Cleveland

The Academy of Psychosomatic Medicine will hold its annual meeting October 15-17, in Cleveland. It has been planned specifically for the orientation of the general practitioner, internist, pediatrician, obstetrician, and other nonpsychiatric physicians.

There will be five symposiums on psychopharmacology, anxiety, mental drug therapy, psychotherapy for the nonpsychiatrist, and depression. Panel discussions are scheduled on the psychosomatic aspects of neuromuscular gastrointestinal arthritis and cardiovascular diseases, obesity, obstetrics and gynecology, alcoholism, geriatrics, migraine headaches, pediatrics, hypnosis, allergy, preoperative and postoperative care, and malignancy. There will be two panels on the newer antidepressive drugs.

Members of the American Academy of General Practice will receive one hour of category II credit for each hour in attendance. All interested physicians are invited to attend. For further information, those interested may write Dr. Zale A. Yanof, program chairman, Academy of Psychosomatic Medicine, 2282 Ashland Avenue, Toledo 10, Ohio.

Medical Writers to Meet

The American Medical Writers' Association will hold its sixteenth annual meeting at the Hotel Chase in St. Louis, October 2-3.

Editors of the various medical publications will speak at the 2 day meeting. Those interested in obtaining further information may write the association at 209-224 W. C. U. Building, Quincy, Ill.

Omaha Clinical Society to Convene

Four days of postgraduate study approved for category I credit and a program of lectures will be presented by the Omaha Mid-West Clinical Society, November 2-5 in Omaha, Neb. The twenty-seventh annual assembly is sponsored jointly by the Nebraska chapter of the American Academy of General Practice, Creighton University, and Nebraska University.

Panel discussions featuring 11 guest speakers of national repute will include a wide range of topics. Arrangements for registration may be made by writing to the Director of Clinics, 1613 Medical Arts Building, Omaha 2, Neb.

Legal Problems Affecting Research Discussed at Chicago Conference

The National Conference on the Legal Environment of Medical Science was held May 27-28 at the University of Chicago at Chicago to discuss the legal problems affecting experimental research in medicine.

The 2 day meeting, co-sponsored by the National Society for Medical Research and the University of Chicago, was attended by clinical investigators, medical practitioners, pharmaceutical industry representatives, lawyers, religious leaders, public welfare administrators, humane workers, animal breeders, and veterinarians.

The conference focused on the following three major areas: (1) The legal and ethical aspects of medical experiments on human beings. (2) Medical studies involving the use of cadavers, organ transplants, and autopsy procedures. (3) Medical experiments involving the use of animals.

A summary of the findings of the group which studied the legal and ethical aspects of medical experiments on human beings follows: "The application of the law to health research on human subjects has developed on a case-by-case basis rather than on a statutory basis. The law has not kept pace with modern medical developments and present day investigative procedures may be evaluated under legal principles of another century . . . The courts should be encouraged to lean upon the principles established by reputable public and private organizations for the safeguarding (legally) of both physicians and patients in modern investigative procedures and human experimentation."

The committee which studied the care and use of laboratory animals recommended the following: (1) there be a closer collaboration between science teachers and professional researchers at the local level; (2) no cats, dogs, or primates should be used because of the lack of proper facilities and because smaller animals are more suitable for the type of study needed in secondary schools; (3) all experimental animals should be kept in the schools, never in students' homes; and (4) the schools should provide adequate facilities for the care and housing of the animals.

The session on cadavers, organ transplants, and autopsy procedures proposed seven basic provisions. It was proposed that there be more uniform laws to govern the form and content of autopsy performances and completely new legislation to solve the legal problems involved in tissue transplantation.

Electrical, Medical Meet Set

The twelfth annual Conference on Electrical Techniques in Medicine and Biology will take place November 10-12 in the Sheraton Hotel of Philadelphia. It is sponsored by the Joint Executive Committee in Medicine and Biology, appointed by and representing the pertinent interests of the American Institute of Electrical Engineers, the Institute of Radio Engineers for its group on medical electronics, and the Instrument Society of America.

The objective of the conference is to contribute to the further advancement of the scientific area between the medical and biological sciences on one hand and electrical engineering principles on the other hand, both from an applied and a basic point of view.

A part of this year's meetings will be concerned with various forms of nonionizing radiation. This includes both biological effects and the use of such radiations as a research tool.

Symposium on Controlling Disability To Be Held October 15-16 in New York

A national symposium on the problem of controlling disability, especially in the areas of cardiac disease, the degenerative diseases of the aged, and psychological disorders, will be sponsored by the Liberty Mutual Insurance Company as a public service, October 15 and 16 in New York.

The objective of the meeting will be to illuminate the growing challenge of disability control in this era of medical care for all and to consider key issues in medical economics.

Those interested may write Edward T. Chase, 260 Madison Avenue, Liberty Mutual Insurance Company, New York 16.

Rhinologic Society to Hold Annual Meeting, Surgical Seminar

The American Rhinologic Society will hold its fifth annual meeting in the Belmont Hotel, Chicago, October 10, preceded by a surgical seminar in the Illinois Masonic Hospital in Chicago, October 7-9.

The hospital clinical program will open the evening of October 7 with a special showing of scientific exhibits. On October 8-9, the program will consist of lectures, surgical demonstrations, clinical reports with case presentations, and panels on osteotomies, implants, and surgery of the lobular cartilages. The society will hold its business meeting the evening of October 9.

Physicians and guests are invited. There is no registration fee. Those desiring further information may write to Dr. Robert M. Hansen, 1735 N. Wheeler Avenue, Portland 12, Oregon.

Obstetricians and Gynecologists To Hold District Meeting in St. Louis

District 7 of the American College of Obstetricians and Gynecologists, which includes Texas, is holding its seventh annual meeting in the Chase-Park Plaza Hotels in St. Louis, September 17-19.

The scientific program will be presented on Friday and Saturday. This will consist of 21 papers, 10 round table luncheons, 2 case reports, and 2 scientific motion pictures. The annual banquet will be held Friday evening.

Those interested in further information may write Donald F. Richardson, American College of Obstetricians and Gynecologists, Box 749, Chicago 90.

National Public Health Meet Scheduled

More than 4,000 public health specialists serving in governmental and voluntary agencies, industrial health work, and private practice will attend the eighty-seventh annual meeting of the American Public Health Association and meetings of related organizations at Atlantic City October 19-23. Meeting highlights will include presentation of the annual Albert Lasker Awards and the Sedgwick Memorial Medal, highest awards in public health. The association has more than 13,500 members and is the largest American professional organization of public health specialists.

Group Practice Physicians Will Gather in Chicago

Physicians from all parts of the United States and Canada who practice medicine as members of a group or clinic are gathering in Chicago at the Sheraton-Blackstone Hotel, for the tenth annual meeting of the American Association of Medical Clinics, September 24-26.

Among the topics to be presented are "Urban, Suburban and Rural Population Trends: Implications for Medical Practice"; "Federal Responsibilities in the Field of Health"; "Research and the Pharmaceutical Industry"; "Research and the Federal Government"; and "Third Party Medical Care Plans." Guest speakers will include Elliott L. Richardson, Washington, D. C., assistant secretary of the United States Department of Health, Education and Welfare; Dr. James Watt, Bethesda, Md., director of the National Heart Institute; Dr. Leonard W. Larson, Bismarck, N. D., chairman of the Board of Trustees of the American Medical Association.

The American Association of Medical Clinics was founded in 1949 as the professional organization of eligible medical clinics, and is an authoritative source of information on group practice. The association has clinic members in 36 states, Canada, and the District of Columbia.

American Fracture Association To Meet November 1-4 in Chicago

All interested physicians are invited to attend the American Fracture Association's twentieth annual meeting November 1-4 at the Roosevelt Hotel in New Orleans. On November 1, there also will be a postgraduate instructional course in fractures.

Texans participating on the program will be Dr. Duncan C. McKeever, Houston; Dr. W. Compere Basom, El Paso; John J. Brennan, Lt. Col., M.C., El Paso; Dr. George W. N. Eggers, Sr. and Dr. E. Burke Evans, Galveston.

The meeting is acceptable for category 2 credit by the American Academy of General Practice. For further information, those physicians interested may address the association at 610 Griesheim Building, Bloomington, Ill.

EDUCATION

Postgraduate Courses

Cardiopulmonary Physiology, Chicago, October 5-9.—The fourteenth annual course in clinical cardiopulmonary physiology will be held at the Edgewater Beach Hotel in Chicago, October 5-9. Tuition for each course is $100 including round table luncheon discussions. Further information may be obtained by writing to the Executive Director, American College of Chest Physicians, 112 East Chestnut Street, Chicago 11.

Radiological Health, New York City, October 12-23.—A course on the introduction to radiological health will be given October 12-23 by the Department of Industrial Medicine of the New York University Bellevue Medical Center Post-Graduate Medical School. The department also will give a radiological health laboratory course, October 26-November 6. An introduction to radiological health will be given for persons having responsibilities connected with the health and safety of personnel in installations using sources of ionizing radiation. The radiological health laboratory is a series of experiments designed to familiarize students with the most important categories of nuclear detection apparatus and techniques of measurement. Doctors desiring further information may write to the Associate Dean, New York University Post-Graduate Medical School, 550 First Avenue, New York 16.

Dermatology, Houston, November 12.—The University of Texas Postgraduate School of Medicine will present a seminar on dermatopathology November 12 in the auditorium of the University of Texas M. D. Anderson Hospital and Tumor Institute. It is designed for pathologists and dermatologists interested in the histopathologic changes of various skin disorders. It will be built around sets of slides which will be mailed to the participants in advance for individual study and diagnosis. Dr. Elson B. Helwig and Dr. J. Leslie Smith will act as moderators for the presentation of the cases and the discussion. The seminar will be restricted to 100 participants; registration will close October 12. For further details, those interested may write the Office of the Dean, The University of Texas Postgraduate School of Medicine, 410 Jesse Jones Library Building, Texas Medical Center, Houston 25.

Ophthalmic Plastic Surgery, New York City, November 16-20.—A course on ophthalmic plastic surgery for specialists will be offered by the New York University Post-Graduate Medical School in New York City. It covers the essentials of ophthalmic plastic surgery for the practicing ophthalmologist. Special emphasis is laid on the more common fundamental procedures peculiar to lid surgery. Those interested in further information may write to the Office of the Associate Dean, New York University Post-Graduate Medical School, 550 First Avenue, New York 16.

Arthritis and Related Disorders, New York City, November 9-13.—This course on arthritis and related disorders, sponsored by the New York University Post-Graduate Medical School in New York City, is planned for the general practitioner who requires a basic knowledge of the field of arthritis and related disorders. Clinic and bedside teaching will be stressed. For additional information, those interested may write the Office of the Associate Dean, New York University Post-Graduate Medical School, 550 First Avenue, New York 16.

Internal Medicine, Washington, D. C., September-October.—The first postgraduate course in selected topics in internal medicine will be given September 28-October 2 at the Georgetown University School of Medicine, Washington, D. C., by the American College of Physicians. The second course on this subject will be given October 5-7. Fees for members of the college will be $60 and for nonmembers, $80.

Foreign Physicians Training in U. S.

Foreign physicians in training in the United States during 1958-1959 increased 10 per cent over the previous year and 65 per cent over 5 years earlier, the Institute of International Education reports. A total of 8,392 doctors from 91 countries, the largest number from the Far East, were in training in United States hospitals (6,068 as residents and 2,324 as interns).

A total of 3,765 foreign students in United States universities were studying medical sciences, and 286 foreign faculty members were teaching medicine in this country. United States faculty members teaching or conducting research abroad included 124 in medicine.

Medical Students' Day At Southwestern Medical School

Medical Students' Day at the University of Texas Southwestern Medical School at Dallas was presented Thursday, September 10, in Dallas by the Texas Medical Association and the Dallas County Medical Association.

Dr. Glenn D. Carlson of Dallas, member of the Council on Public Relations and Public Service of the Texas Medical Association, presided over the afternoon program. Dr. Floyd A. Norman, Dallas, president, Dallas County Medical Society, presided over the dinner meeting during the evening.

The program consisted of the following presentations: "Socio-Economic and Public Relations Considerations in Medical Practice," C. Lincoln Williston, Austin, Executive Secretary, Texas Medical Association; "Your Practice and Public Opinion," Dr. Thomas L. Royce, Houston, Council on Public Relations and Public Service, Texas Medical Association; "Serving the Doctors of Texas," Donald M. Anderson, Austin, Assistant Executive Secretary, Texas Medical Association; "The Business Side of Your Practice," Dr. Everett C. Fox, Dallas, Dallas County Medical Society; "Legal Aspects of Medical Practice," Philip R. Overton, Austin, General Counsel, Texas Medical Association.

Other speakers included Michael L. Finerty, El Paso, student at Southwestern Medical School, and Dr. Frank Harrison, Dallas, associate dean of Southwestern Medical School. Dr. R. Mayo Tenery of Waxahachie, Councilor, District 14, Texas Medical Association, spoke at the dinner on "Medical Ethics and Medical Etiquette; Obligations of the Physician to His Colleagues and to the Profession."

New Nursing Schools Approved By Vocational Nurse Examiners

Four new nursing schools were approved by the Texas Board of Vocational Nurse Examiners at its August meeting, bringing to a total of 103 vocational nurse training programs active in the state.

Also, at the August statewide examination 434 candidates passed and were issued Vocational Nurse Licenses. There were 50 approved vocational nurse training programs represented in the August examination. A recent report from the National League for Nursing reflects that during the 1957-1958 academic year, Texas graduated 1,236 vocational nurses. This is the greatest number of practical nurses trained by any of the states, and is 10 per cent of the national total.

Medical Research Foundation Gives $52,500 to Texas Schools

A total of $52,500 has been awarded to the five medical and dental schools in Texas in the past 17 months. The schools recently were given unrestricted research grants of $5,500 each.

The foundation develpoed out of the recognition that a major problem facing the medical and dental schools of Texas is the inadequate support Texans give to basic medical research in their own Texas medical institutions. The fund raising effort of the foundation has been limited to appeals to individuals and corporations who, in the interest of public service to Texas, find it feasible to help sustain the foundation's program through either research or administration grants.

Joint application with the National Fund for Medical Education's Research Program for inclusion in the fall campaign has been made to several United Fund and Community Chests in Texas, the foundation reports.

DRUG NOTES

Dangerous Drug Act Becomes Effective August 11

"Texas Dangerous Drug Law," which was passed by the fifty-sixth Texas Legislature, became effective August 11. This state law supplements and complements already existing federal law and gives powers to state agencies where little or none previously existed.

The prescribing physician, among others, is included in the basic responsibility for preventing the improper distribution of dangerous drugs.

The term "dangerous drug" is carefully defined by the law. However, to simplify, any drug bearing the "prescription legend" according to the law is a dangerous drug. "Prescription legend" drug labels bear the statement: "Caution: Federal law prohibits dispensing without prescription." Practically speaking this includes just about every item in the average prescription department.

The state law as well as the previously existing federal law expressly prohibits the refilling of any prescription for "dangerous drugs" without the consent of the prescriber. This means that the physician now will receive increasing numbers of phone calls for such consent. Many of these phone calls and much time will be saved by the physician, pharmacist, and the patient if refill directions are designated at the time of the writing or phoning of the original prescription. In this connection, it is well to keep in mind that the pharmacist is making the call at the request of the patient. The pharmacist, like the physician, does not want to increase his phone time either.

The patient who, in the past, has obtained his refill in a relatively short time cannot understand any question or delay concerning the refill. In fact the lay public is so accustomed to self-medication practices that many feel that this legislation is unjust and vigorously resent such regulation. Many persons are still of the opinion that self-medication is an American prerogative. Ultimately behind this is the fear that the new situation will cost them more money. This is the true motivation for their irritation. Right or wrong, justified or not, physicians must recognize the situation as it exists and attempt to lubricate all points of friction.

Basically the nature of people is difficult to change. Usually they will not request a refill until after the last dose is taken. This again is a monetary motivation in the hope that the refill will not be needed. People do not like to spend money for something they do not want. Prescriptions and medical services fit into this unique category.

The last dose of medication invariably seems to be taken in the evening, after office hours or Saturday afternoons and on Sundays. Indeed, at times, it appears to the pharmacist that they purposely wait until these times to request refills in the hope that he will refill the prescription without the physician's knowledge. (Again the patient desires to avoid an additional service charge.) These are occasions when the physician least wants to be disturbed and when he is the most difficult to locate. Patients are not accustomed to the necessary delay. They have waited

until the last minute and in their mind an emergency exists. They want the medication immediately, if not sooner. Whether the patient is right or wrong, justified or not, better relationships will be maintained during this educational transition period if these attitudes are faced, recognized, and considered. People will learn but it will take time.

There have been instances when some physicians have become critical and disturbed when phoned concerning refills. Much of this criticism has been misdirected since those doing the phoning were those who were attempting to abide by the federal law which has been in existence for some time. Also, these have been the ones abiding by refill designations. Those pharmacists from whom physicians have never had a phone call and yet received prescriptions were the ones guilty of refilling without authorization and ignoring refill designations. Now, it comes under the tongue of good report that the state law will be strictly enforced. Those not phoning before will have to phone now. The physician is at liberty to report violations.

Physicians are involved directly with several portions of the new state law. The practitioner must meet certain labeling requirements in dispensing medication in the course of his practice. This includes even the giving away of samples which carry the prescription legend. The labels shall include the name and address of the physician, the directions for the use of the drug, and the name and address of the patient. It is illegal for any person to have "dangerous drugs" in his possession unless properly obtained and properly labeled.

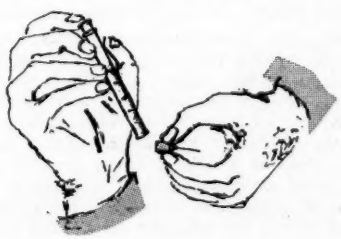
Practitioners also are required by this law to inventory all of their stocks of barbiturates or other hypnotic drugs as well as those drugs set forth in section 2 (a) (2), as of August 11, 1959, and to retain this record for a period of 2 years. Furthermore, they are required to retain each commercial record relating to such drugs and to create and maintain a perpetual record of purchases.

The physician's pharmacist can help in determining those drugs involved. Generally, the list will incude: all straight barbiturates (not combined with drugs having other therapeutic activity); all chloral, paraldehyde, bromural, and trional preparations; hypnotics including the unsaturated alcohols such as Dormison, Placidyl, Ultran; all amphetamines and desoxyephedrine preparations or compounds or mixtures of this sort (except nasal preparations, and others, unfit for internal use). These records shall be available for inspection and copying by state officers. These officers also have the authority to make inventory checks of these drugs.

Violations of the provisions of this act may bring up to $3,000 in fines or up to and including 2 years in prison or even up to 10 years with a second violation.

It may be of interest to note that the present pharmacy law defines substitution as the act of dispensing a drug or a brand of drug other than that which is ordered or prescribed without the express consent of the prescriber. Substitution must be reported before it can be eliminated.

—HERBERT SCHWARTZ, M.S., Austin.



GENERAL INTEREST

Personals

Dr. Truman G. Blocker, Jr., and his wife, *Dr. Virginia Blocker,* and their son, Galveston, spent much of the summer in Europe, where Dr. Blocker visited plastic surgery services and burn centers in Leningrad and Moscow. He also attended in London the International Society of Plastic Surgeons meeting, July 13-17, at which he presided as chairman of the section on burns.

Several physicians and their wives have become recent parents. They are *Dr. and Mrs. J. E. Kreisle* of Austin, who have a new son, William Holder; *Dr. and Mrs. Bradford Hardie* of El Paso, who have a little girl born on June 24; *Dr. and Mrs. Ben Z. Taber* of El Paso, who have a daughter born on June 16; and *Dr. and Mrs. F. J. Pediga* of Denton, who have a son who was born August 5.

June weddings in physicians' families include the following: The daughter of *Dr. and Mrs. Maurice Spearman,* El Paso, Jacquelyn, married Wickliffe Pickett Curtis, son of *Dr. and Mrs. Wickliffe R. Curtis* of El Paso; Linda Hart, daughter of *Dr. and Mrs. Maynard Hart,* El Paso, married Lt. John Page Kemp, Jr., of El Paso; Sandra Robbins, daughter of *Dr. and Mrs. J. B. Robbins,* El Paso, married Robert Sidney Harris of El Paso; Bettie Sommers Vaughan, daughter of *Dr. and Mrs. Winston Hunter Vaughan* of El Paso, married Donald Ray Nance of El Paso; Travis Hartley Bennett, son of *Dr. and Mrs. J. Travis Bennett,* El Paso, married Lois Ann Miller of Pueblo, Colo.

Dr. Willard R. Cooke and *Dr. H. Reid Robinson* have been appointed as professors emeritus in the Department of Obstetrics and Gynecology at the University of Texas Medical Branch, Galveston, effective September 1.

Dr. E. E. Muirhead of Dallas has been named director of laboratories for the Woman's Hospital and professor of clinical pathology at Wayne State University College of Medicine in Detroit.

Dr. Thomas J. McElhenney, Austin, was presented with the traditional Hawaiian lei of friendship by Miss Aloha Rotary and Duke Kahanamoku, Honolulu Rotarian, in Honolulu in August when he attended an international meeting of Rotarians.

At the recent meeting of the American Proctologic Society in Atlantic City, *Dr. Curtice Rosser* of Dallas was elected to honorary fellowship in the society.

Dr. Arild Hansen, professor of pediatrics at the University of Texas School of Medicine, Galveston, recently was honored by the American Heart Association by the distinguished service award.

Dr. J. Edward Johnson has been named president of the Austin-Travis County Heart Association for the coming year. *Dr. Douglas Terry* is vice-president. *Dr. Virgil B. Lawlis* is immediate past president. All these physicians reside in Austin.

Dr. William James McGanity, formerly of Nashville, Tenn., has been appointed professor and chairman of the Department of Obstetrics and Gynecology of the University of Texas Medical Branch at Galveston effective January 1, 1960. He has been appointed as visiting professor of obstetrics and gynecology effective September 1. Dr. McGanity will succeed Dr. Garth Jarvis, who will continue as professor in the department.

Dr. John W. Fisher, Dallas gastroenterologist, is scheduled to appear in a segment of "Championship Bridge," a filmed television series scheduled to begin in October on ABC-TV, the *AMA News* reports. Dr. Fisher is the first

physician to win the title of national master's open champion in the American Contract Bridge League and is author of a four part article on bridge in the *AMA News.*

Dr. James N. Walker of Fort Worth returned recently from a 6 weeks European trip with the Texas Boys' Choir.

Cooke Wilson Kelsey, 16 year old son of *Dr. and Mrs. Mavis P. Kelsey* of Houston, was killed in an automobile accident early the morning of August 8.

Dr. May Owen, President-Elect of the Texas Medical Association, was honored in the August 22 issue of the *Journal of the American Medical Association* as being the first woman to have ever held this office.

Two Volunteer Pilots Selected For 30 Day Simulated Space Flight

Volunteer Air Force pilots have been carefully screened and a group selected from which two men will be drawn for the first United States experiment in long-term simulated space flight, reports Lt. Col. George R. Steinkamp, chief of the Department of Astronecology for the Air Force's School of Aviation Medicine at San Antonio.

Plans are being made to confine two of the volunteers in a space cabin simulator for a period of 30 days. The simulator, a 7-ton device 8 feet high and 12 feet long, is now 90 per cent completed at Minneapolis-Honeywell's Aeronautical Division plant in Minneapolis. It is scheduled for delivery to the school at Brooks Air Force Base by the end of September.

As soon as the equipment is thoroughly tested and operators are trained in its use, the first 30 day experiment will be conducted to record psychological and physiological stresses on men in space. The astronauts will breathe and rebreathe the same air and drink and redrink the same water. Urine and all other forms of waste water are purified by a Honeywell developed process, which includes chemical treatment, filtering, superheating, freezing, and final filtering through activated carbon.

As a result of these developments, the astronauts will find all of their human needs satisfied within the confines of the capsule. Their isolation from the world will be virtually complete.

Future of Atomic Energy Told in Progress Reports

Publication of "Progress in Atomic Energy," volume 1 of the proceedings of the United Nations sponsored second Geneva Conference on the Peaceful Uses of Atomic Energy, is now completed.

Highlight of the book is the section titled, "The Future of Nuclear Power," where 36 internationally known authorities from 22 nations outline their country's future nuclear programs. In addition, volume 1 also contains the complete program for the entire conference, a section of 24 papers from various countries on the supply and training of technical personnel, a section of six papers dealing with the development of international collaboration in atomic energy, and a section of six papers on key aspects of atomic energy presented as evening lectures by some of the world's foremost authorities.

Volume 1, containing 525 pages, 218 illustrations, and 162 charts and graphs is priced at $12.50. Those interested may write to the United Nations, Sales Section (Atomic Energy), New York.

Team Work Proves Successful In Obtaining New El Paso Hospital

Team work is solving a health problem in El Paso, reports the El Paso County Society.

For many years, the El Paso General Hospital was far behind most modern hospitals. The average patient stay was far too long; extra tax funds, borrowed repeatedly in desperation, barely plugged deficit holds. All three Texas medical schools refused to authorize internship training there. And, despite the tripling population, not a single bed had been added since 1932, according to the August 1 issue of the *Journal of the American Medical Association.*

In July of this year, however, plans were started for a new hospital, which will be built next year. It will cost between $4,000,000 and $5,000,000, and will be double the size of the present facility by 1962.

Last year, the El Paso County Medical Society realized that it had to get the voters' understanding of a critical health problem which had been brought to the attention of the community and the energetic physicians.

For many years the hospital had been in trouble. Ostensibly a county facility for indigent patients, it had had to turn to the city of El Paso in recent years for enough money to manage even marginal operation. Even then, the funds appropriated lagged far behind the rising costs and increased patient loads.

The first action of the El Paso County Society was to form a fact-finding commission with community representation, to find out what might be done about the hospital. After months of study, the commission recommended that a hospital district take over operation, maintenance, and expansion.

Since creation of such a district required a successful referendum, the medical society's next action was to help form a citizen's committee for the hospital district. In doing so, it enlisted the aid of as many local organizations as possible, in an effort to insure widespread support.

The citizen's committee conducted an educational campaign based on two themes—that the hospital district was the most economical way to raise the necessary operating funds, and that all district residents, as well as indigent persons, would automatically be taken to El Paso General if they required emergency treatment.

All avenues of communication were used to promote the district idea. Background material was prepared for speeches and news stories, telephone committees reached 19,000 property owners, social and civic clubs were taken on tours of the hospital, and speakers were provided for organizational programs. A major publicity effort was handled by the society's woman's auxiliary, which addressed two sets of postal card advertisements to a total of 48,000 people.

The effort was a success. Voters last November approved the creation of a taxing district for El Paso General and supplemented it with an eight-to-one approval last April of a $3,700,000 bond issue for new construction. Hospital officials are preparing this month to apply for an estimated $1,500,000 more in Hill-Burton matching funds.

Greater Insurance Coverage in 1958

A total of $4,700,000 in benefits was paid by Voluntary Health Insurance to insured Americans in 1958 to help meet the costs of hospital and medical care and to replace income lost through disability.

At the end of 1958, there were 123,038,000 persons protected against the cost of hospital care, over 1,500,000 more persons than were so protected at the end of 1957.

Hospital Association To Move to Austin

The Texas Hospital Association has been authorized by its board of trustees to move its headquarters building from Dallas to Austin. The trustees unanimously voted on this move at their June 20 meeting.

It was the considered opinion of the board that in future years the THA headquarters office will be able to serve the membership more effectively by being located in the capital city.

The point was emphasized that the removal of THA's offices from the Blue Cross-Blue Shield building does not in any way lessen the degree of close cooperation and harmony that always has existed between Blue Cross-Blue Shield and the Texas Hospital Association. The reason for the move was for the Association to be near the state headquarters offices with which it is connected. Also, the legal counsel is located in Austin.

Rehabilitation of Asthmatic Children Emphasized in Film Available to Doctors

"The Hidden Fear," a new 16 mm. motion picture about a successful rehabilitation program for asthmatic children, is now available for showing to medical and lay groups throughout the country.

The film, which runs about 15 minutes, shows the rehabilitation program developed by Dr. Merle S. Scherr, chief of the allergy section, Charleston Memorial Hospital, Charleston, W. Va. It may be obtained for showing under medical auspices to professional or lay groups. Requests for a print of the film should be addressed to George Rohrmann, Film Department, Warner-Chilcott Laboratories, Morris Plains, N. J.

Physician to Be Honored on Stamp

A United States postage stamp to be issued in December will honor Dr. Ephraim McDowell of Kentucky, who 150 years ago on Christmas Day performed the world's first successful scientific abdominal operation.

The McDowell stamp, one of the series of "famous Americans," was authorized following a campaign by the Kentucky State Medical Association, American Medical Association, and 16 other national, regional, and state medical groups.

Physicians and Pharmacists Code To Be Drafted by Spring

An outline for a professional code between physicians and pharmacists has been approved at a joint meeting of members of the liaison subcommittees of the boards of councilors of the Texas Medical Association and the Texas Pharmaceutical Association.

The code will be drafted from the outline by Max Roesch, executive director, Texas Pharmaceutical Association, and Donald M. Anderson, assistant executive secretary, Texas Medical Association, and will be presented to the group at a spring meeting. It will include the professional, business, and social relationships of these two groups.

Texas Rehabilitation Center Continues to Serve Texans

The Texas Rehabilitation Center of Gonzales Warm Springs Foundation, saved by timely loans from a virtual shutdown this summer for financial reasons, is continuing to serve the severely disabled population of the state.

Without curtailing medical services, the center has closed some of its wards until such time as its financial position warrants their reopening. In the meantime, public support in the same degree the center has received during the past 12 months will be essential for the operation to continue on the present level, officials of the center say.

As a matter of policy, the center accepts only patients who are referred there by a doctor not associated with the hospital, and on discharge all patients are referred back to the referring doctor. Patients are admitted only if it can be determined that the center's program can help them. Frequent progress reports are mailed to the referring doctor.

During the past year the center has provided the following breakdown of services: patients treated, 1,613; inpatient days, 23,076; physical therapy procedures, 64,609; occupational therapy procedures, 13,063; periods of speech therapy, 2,331; clinical tests, 2,669; rehabilitation nursing procedures, 6,434; medications dispensed, 148,513; x-ray exposures, 3,055; laboratory examinations, 3,334; new appliances constructed by the brace and corset shop, 3,789; and repairs to old appliances, 3,718.

Other services include examinations and treatments by dental clinic, 1,298; interviews by psychological and social services, 821; vocational assessments, 323; psychological evaluations, 309; physical therapy and occupational therapy students instructed, 42; resident physicians, 2.

Only about 20 per cent of the patients treated during the year were afflicted by polio. The others were disabled from accidents (mainly automobile), strokes, arthritis, cerebral palsy, multiple sclerosis, muscular dystrophy, and other paralyzing diseases. Ages ranged from a few months to past 80.

More than $330,000 were expended for free services to patients without adequate resources of their own. No patient who could be helped was turned away for lack of funds.

Recent surveys show that the need for rehabilitation services continues to be great and that there is an appalling shortage of adequate facilities to take care of the needs. Texas, in fact, lags far behind nearly every other state in the Union in its services to the physically handicapped, particularly those with serious disabilities, center officials report.

The Texas Rehabilitation Center offers its staff and resources to bring programs on its facilities and services and on physical medicine generally to local medical societies. Inquiries should be addressed to the medical director, P. O. Box 58, Gonzales.

Help on Crippled Children Offered

A guide to sources of care and treatment of crippled children has been made available in a 32 page booklet "You Are Not Alone" by the National Society for Crippled Children and Adults. The fourth in a series of publications designed to help parents of crippled children, the booklet outlines the many types of assistance through professional persons, voluntary agencies, and federal services which are available to help the physically handicapped.

Other booklets in the series relate to the "why" of being handicapped, play by handicapped children, and stuttering. All booklets are available at 25 cents per copy from the society, 2023 West Ogden Avenue, Chicago 12.

Texas Cancer Society Selected For Largest Medical Study

The Texas Division of the American Cancer Society was selected as one of 20 divisions to participate in the largest medical statistical study ever attempted in America to discover why some people may be more likely to get cancer than others.

The survey, which will involve more than 1,000,000 Americans, will take 6 years to complete. It was approved by the society's national board of directors at its June meeting in Boston. It is the first such large scale family prospective study ever undertaken and will be conducted with the assistance of 50,000 trained society volunteers. In Texas, a total estimated 5,000 volunteers will handle the field work necessary to interview all members of some 45,000 Texas families.

Under direction of Dr. E. Cuyler Hammond, American Cancer Society Director of Statistical Research, the study will probe the effect of environment on cancer and will attempt to learn more about symptoms of the disease to help improve early detection. The objectives are to test many theories about the cause of cancer as well as to clarify certain known facts; to find out what percentage of the public has undiagnosed cancer; to find out whether those who have cancer have had certain symptoms or think they have had them, or whether they have developed the disease with no apparent symptoms; and to find out how frequently the patient may be responsible for delay in seeking diagnosis and treatment.

Polish Institute Asks for Books, Journals

The Polish Institute of Arts and Sciences in America has issued a call to all American medical groups, colleges, hospitals, and physicians to contribute new and used medical textbooks, reference books, and journals to medical schools and teaching hospitals.

Individuals and organizations are invited to send books and journals, prepaid postage, express or freight, to Maryan Chodacki, Polish Institute of Arts and Sciences in America, 145 East 53rd Street, New York 22. Individuals and groups with contributions but without funds to pay shipping costs to New York should write to Mr. Chodacki.

USSR Doctors Have Few Worries, Russian Reveals at World Conference

The director of a Russian medical institute told those attending the second World Conference of Medical Education in New York, September 3, that doctors in the USSR have few worries because the state takes care of everything.

"In the USSR improvement in doctors' professional skill is a matter of national importance," said Professor Z. I. Yanushkevichius, director of the Kaunas Medical Institute, Kaunas, Russia. "The state budget bears the whole expense connected with the maintenance of the advanced training institutes for doctors, medical institutes and local facilities."

Professor Yanushkevichius was one of more than 125 speakers from 51 foreign countries appearing on the medical education program. The conference, sponsored by the World Medical Association, is a medium for the free exchange of scientific information and experience between countries.

Health Coverage for Oldsters Offered After Texas Study

For the month of October only, Texans aged 65 years and older may apply for individual or family coverage through Blue Cross-Blue Shield of Texas. Three versions of the "300 Service" plus a special service at a somewhat lower cost will be available to Texans in good health who are not able to obtain health protection through an employed group.

Blue Cross-Blue Shield service has been available heretofore to younger persons on a nongroup basis, and many doctors and hospitals have had literature on this service in their offices and waiting rooms. With the new services, this literature should be discarded and new material ordered, Blue Cross authorities point out. Order cards are being sent to each member of the Texas Medical Association.

There are already 72,000 Texans aged 65 and over who are protected by Blue Cross-Blue Shield of Texas. They were enrolled through established procedures and include group retirees and others who joined through various types of enrollment. All have been permitted to retain their protection regardless of the age they attain. The present campaign to make available coverage to all oldsters in good health is a further answer to a problem which has become critical because it has become political, Blue Cross-Blue Shield officials explain.

Recent Interest in Problem

The medical profession has long been concerned with good health for persons past 65 years of age. As geriatrics, this particular field increasingly has come to the attention of doctors everywhere. One reason is the contribution which the medical profession has made to greater life expectancy of Americans.

Advances in life span have been made without much concern about the ability of the older age group to pay for health care. Recently, however, some of the legislators in Washington have become greatly concerned over the issue of prepaid health protection for Americans over age 65. H.B. 4700 (amendments to the social security act introduced by Aime Forand of Rhode Island), which was the subject of extended hearings during the current session of Congress, would provide health care payments for a large segment of older persons eligible to receive social security benefits. In voicing its opposition to such legislation, the medical profession expressed its interest in finding positive answers that can be applied by voluntary methods as an alternative to government legislation and control.

Blue Cross-Blue Shield invites the physicians of Texas to promote good prepaid health protection by telling their patients of the special offerings available *during October* without limitation as to age. These plans will be available throughout the year to Texans in good health under age 65.

Cancer, Heart Disease Cause Most Deaths

The cardiovascular-renal diseases and cancer—the two great killers of American people—accounted for 75 per cent of the 500,000,000 paid out in death claims last year by the Metropolitan Life Insurance Company.

Accidental deaths accounted for the next largest amount of claims; more than half of these were for fatalities in motor vehicle accidents.

Board of Examiners in Basic Sciences Sets October 12-13 for Examination

The Texas State Board of Examiners in the Basic Sciences has set October 12-13 as the date of its next examination. Details as to time and place may be obtained by writing to the Chief Clerk, Texas State Board of Examiners in the Basic Sciences, 201 East 14th Street, Austin.

Applications for the April examinations will not be accepted after October 1, 1959, and all necessary information and documents required by the Board of examinees must be completed and in the applicant's file by that date. Those interested in participating in this examination should act immediately.

Papers Solicited for French Phlebology Congress

Communications dealing with venous stasis, venous affections of the lower limbs, and the sclerosing method in its extravascular applications are being accepted for the International Congress of Phlebology to be held May 6-8, 1960, at Chambery, France. Inquiries may be addressed to one of the secretaries, Dr. S. Bourgeois, 8 Boulevard de Théâtre, Chambery, Savoie, France.

Diagnosis and Reasons for Visits Have Been Compiled for 1958

A summary report, "One Hundred Leading Diagnoses and Reasons for Visits" has been compiled by the National Disease and Therapeutic Index during the past year and now is available on request. Based on patient visits and not upon individual diagnoses, the report shows the percentage of total patient visits for the various diagnoses.

Heading the list was 16.75 per cent for special conditions, examinations, prophylactic inoculations and vaccinations, and medical and surgical aftercare. Diseases of the respiratory system were next with 12.86 per cent, followed by diseases of the circulatory system with 8.27 per cent for the full year. Gastrointestinal diseases tallied 5.19 per cent trailed closely by genito-urinary diseases at 4.77 per cent.

Requests for the annual report should be addressed to the National Disease and Therapeutic Index, 8600 Prospect Avenue, Philadelphia 18.

Hospitals in the United States Cared For More in 1958 Than in 1957

Hospitals in the United States cared for 700,000 more cases last year than in 1957, the American Hospital Association reports.

A total of 23,697,000 hospital admissions was reported in 1958, as compared to 22,993,000 in 1957. The information was compiled from questionnaires received from 6,786 hospitals in the United States. Births reported by the hospitals reached an all time high of 3,742,000 babies born in 1958. Each day last year there were more than 1,300,000 patients and 48,000 newborn babies in hospitals.

The hospitals reported total expenses of $7,133,493,000 of which $4,660,191,000 was for payroll. Patients in voluntary short term hospitals paid an average of $1.28 a day less than it cost to care for them.

Prevention Industrial Health Concern

Prevention of job connected injuries and diseases as well as treatment has become important in medical programs of businesses, a study by the National Industrial Conference Board reveals. The study included 242 United States and 36 Canadian firms.

More than four-fifths of the United States companies and almost nine-tenths of the Canadian group require preplacement physical examinations of every prospective employee including those on the executive level. More than four-fifths also give periodic examinations either to all or to selected groups of employees.

More than three-fourths of the United States firms have eye protection programs of some kind, and about one-fourth have instituted programs to reduce noise in their plants and to check hearing loss.

Only 10 of the responding firms employ psychiatrists, but a large percentage offer counseling service designed to help the employee lead a better adjusted life. Among 199 of the United States and Canadian firms participating in the study which have industrial hygiene programs, about three-fourths make the medical department responsible for them.

Size of the firm, its type of business, and attitude of top management toward investment of funds in a health program affect the scope of medical departments, the study shows, but another influence is the differing philosophy of doctors and often of company managements as to what a preventive health program can include without putting the company in the position of practicing medicine.

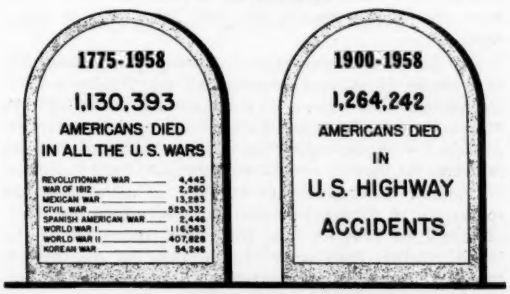
Factors in High Cost of Health Care Cited

Past head of the American Hospital Association, Ray E. Brown, attributes the rising cost of the hospital bill to more babies, more old people, city living, accidents, working wives, and smaller homes.

In a recent article Mr. Brown reports that the number of children per family increased from 2.4 to 3 consequently increasing the percentage of births in the hospitals. In the over 65 age group he states that by 1975 there will be a 52 per cent boost in the number of people of this age. Persons over 65 use about three times more hospital care than younger people.

City dwellers and the constantly increasing level of education have much to do with more people using hospital care more readily. Prepaid health insurance such as Blue Cross-Blue Shield has done much to remove the financial barrier. More than 123,000,000 Americans now carry some kind of hospitalization insurance, Mr. Brown emphasizes.

War and Peace



—Texas Department of Public Safety.

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Gifts to the Library

Dr. S. M. Hardt, Bastrop, 190 journals and 2 books.

Dr. David R. Womack, Austin, 54 journals.

Dr. Georgia Legett, Austin, 24 journals.

Mrs. C. H. Miears, Austin, 410 journals and 90 books.

Dr. B. O. White, Austin, 12 journals.

Dr. William P. Ball, Cleburne, 40 journals and 157 books.

Dr. Raleigh R. Ross, Austin, 6 books and 1 instrument case.

Book Notes

Centaur

FELIX MARTI-IBANEZ, M.D., Professor and Director of the Department of the History of Medicine, New York Medical College; Editor-in-Chief of MD Medical Newsmagazine. 714 pages. $6. New York, MD Publications, 1958.

During wartime periods people forget ethics, rationalization, morals, and history; however, during peacetimes when more leisure is available for thought we again turn to the pleasant occupation of reading, thinking, and exploring the mind of man. During the last few years we have been having a peaceful existence, and many articles on medical history and ethics have come from medical authors. Historical subjects seem to have reader appeal since editors are inclined to use them more and more.

We have lost many great historians during the last half century such as Sir William Osler, "Billy" Welch, Max Neuburger, Karl Sudhoff, Fielding H. Garrison, Henry E. Sigerist, Cecilia C. Mettler, Logan Clendening, Howard W. Haggard, Victor Robinson, Sir D'Arcy Power, and Harvey Cushing. To take their place we have Charles Singer, Walter Pagel, John Fulton, Douglas Guthrie, Donald O'Malley, A. Pazzini, Ilza Veith, K. J. Franklin, Louis Chavois, A. Dickson Wright, and recently a Spanish gentleman transplanted to New York, Dr. Felix Marti-Ibanez. Dr. Marti-Ibanez received his M.D. from the University of Madrid and has practiced psychiatry, although his true love, by his own admission, has always been medical history. The success of Dr. Marti-Ibanez as editor of *M. D. Medical Newsmagazine* has been phenomenal during the last 3 years. This magazine, which is subsidized by medical advertisements, is beautifully printed with many illustrations and gives a historical slant to present day medicine. This magazine is much enjoyed by me and my friends and I am sure by most of the medical profession in the United States.

From the fertile mind of Dr. Marti-Ibanez has come 66 essays on medical history. These essays cover all the fields of medicine from "Aesculapius in the Kitchen" to "The Spirit of American Medicine." They have been published in book form under the title of "Centaur" or "Essays on the History of Medical Ideas." These articles are all well written and easily read. The scope of the book is universal in time and space. This is a book to keep by the bedside to read at leisure like Sir Thomas Browne's "Religio Medici," Burton's "Anatomy of Melancholy," or Sir William Osler's "Aequanimitas." The book is also very enjoyable to have on a trip as I had the pleasure first to see it. Reading these essays will give the busy physician a wealth of information and also inspiration to perform the "daily task" in a better manner. I would recommend it for all practitioners of "The Art" and also suggest that it would make an exceptionally nice gift from one physician to another. The print and binding are excellent.

—William M. Crawford, M.D., Fort Worth.

Fracture Surgery

HENRY MILCH, M.D., Emeritus Attending and Consulting Orthopedic Surgeon, Hospital for Joint Diseases, New York; ROBERT AUSTIN MILCH, M.D., Assistant Resident Surgeon, Peter Bent Brigham Hospital, Boston; and HERBERT D. DUBOVSKY, M.D., Director of Anesthesiology, Easton Hospital, Easton, Pa. 470 pages. $17.50. New York, Paul B. Hoeber, Inc., 1959.

The authors state in the preface that the book is particularly planned for the "medical student and the surgical house officer, those at the beginning of their study of fractures." However, the volume lacks the clear, simple, and concise approach so desirable in any work aimed at this particular group. It is the feeling of the reviewer that much of the discussion is somewhat too scholarly and of a more advanced nature than would appeal to this neophyte group. Some of the discussion presupposes a basic background and understanding of fracture problems which would not be possessed by this group.

The authors belittle the importance of clinical diagnostic criteria and analysis of causative mechanisms in fractures, claiming that this has been superseded by the use of the roentgen ray. While the experienced fracture surgeon may be able to evaluate this philosophy in its proper perspective, the inexperienced man may be easily misled into overlooking some of the serious soft tissue injuries that may be only remotely suggested by a benign appearing roentgenogram.

The methods of treatment advocated by the authors would be generally accepted by the majority of the men doing fracture surgery with one outstanding exception. That is the use of a miniature Thomas ring type of splint for treatment of fractures of the phalanges by traction in extension "where there is no displacement of the fragments and simple immobilization is all that is necessary." The great majority of hand surgeons vigorously denounce the practice of placing injured fingers in the position of traction in extension because of the obvious danger of subsequent capsular and ligament contracture resulting in a hand stiffened in a position of nonfunction.

This book may be useful as a supplemental reference.

—G. S. Ahern, M.D., Corpus Christi.

Coccidioidomycosis

MARSHALL J. FIESE, M.D., F.A.C.P., Director of Health Services, Fresno State College; Clinical Instructor in Medicine, Stanford University School of Medicine. 253 pages. $9.50. Springfield, Ill., Charles C Thomas, 1958.

As Dr. Charles E. Smith points out in the foreword, Dr. Fiese presents a very complete and valuable summary of our knowledge of coccidioidomycosis. He writes in a manner which is easy to read and yet is authoritative and complete in every detail.

The history of the disease is presented in an enlightening manner and is enjoyable reading. For those interested in the bacteriology of the fungus detailed procedures are outlined. It is emphasized that those who handle Coccidioides are susceptible to laboratory infections, and cases of such infections are described. The technique of handling the fungus is carefully presented so that such infections may be avoided. This part of the book is extremely important for those who are handling such cultures and particularly Coccidioides.

Treatment is described but it is pointed out that medical therapy is at present unsatisfactory.

Finally there is an excellent complete bibliography in chronological order.

This book is interesting reading for not only the physician with a casual interest in coccidioidomycosis, but those interested in the laboratory studies of the fungus and finally a complete review for those whose interest lies in this field. It is a "must" for all medical libraries.

—Jack A. Bernard, M.D., El Paso.

Anatomy for Surgeons

W. HENRY HOLLINSHEAD, Ph.D., Professor of Anatomy, Mayo Foundation, University of Minnesota; Head of the Section of Anatomy, Mayo Clinic, Rochester, Minn. 901 pages. $23.50. New York, Paul B. Hoeber, 1958.

This book is organized in such a way that it is easily read and therefore serves as a review of anatomical facts and concepts as well as a reference. Each part is presented with all of the anatomy, such as muscles, nerves, and blood vessels, of that region. I found that this grouping of the regional anatomy was easier to use than the usual textbook arrangement of the nervous system in one part, blood system in another chapter, and so forth.

The NA terminology is used almost throughout the book, which makes for easy readability. The references are adequate to present controversial concepts, but not superfluous.

The author demonstrates an excellent mode of presentation of diagrammatic illustrations that are well used for simplification of the text. This text is highly recommended to surgeons, orthopedists, and graduate and undergraduate students.

—Elliott B. Hay, M.D., Houston.

Heredity of the Blood Groups

ALEXANDER S. WIENER, M.D., Senior Bacteriologist (Serology) to the Office of the Chief Medical Examiner of New York City; Assistant Professor, Department of Forensic Medicine, New York University Postgraduate Medical School; and IRVING B. WEXLER, M.D., Associate Pediatrician, Jewish Hospital of Brooklyn; Assistant Clinical Professor of Pediatrics, State University of New York, College of Medicine at New York City. ed. 1. 150 pages. $6. New York and London, Grune & Stratton, 1958.

This is a book that pleads for strict discipline on the part of the workers in the field of blood groups. The preface and introduction are particularly valuable and should be read by all physicians who use blood as a therapeutic agent. Fundamental principles are given, and as the authors state, if these are mastered, the entire field of blood groups will become simpler. Definitions are given in understandable terms and are valuable to the worker in this field.

This book is relatively small and concise and consists of approximately 150 pages. There are 12 chapters that deal with the various blood groups and systems in great detail. It will serve as an excellent reference text for such things as the A-B-O blood groups and Lewis types, the M-N-S system, the P system, and the Rh-Hr system. It is unexcelled for its conciseness in the literature today. A typical chapter workup on blood groups usually includes serology, gene frequency analysis, family studies, subgroups, nomenclature, population studies, and other complexities.

In addition to this, there is an excellent bibliography of 265 references which will be of value to anyone who wishes to read the original articles.

As mentioned earlier, all physicians should read the preface and introduction. The specialist in the field of blood groups will value the information in the remaining chapters.

—Lloyd R. Hershberger, M.D., San Angelo.

Surgery of the Sympathetic Nervous System

SIR JAMES PATERSON ROSS, LL.D., M.S., F.R.C.S., F.A.C.S., Director of Surgical Professorial Unit, St. Bartholomew's Hospital, London. ed. 3. 170 pages. $8. London, Bailliere, Tendall and Cox, 1958.

The Anatomy of the Nervous System, Its Development and Function

STEPHEN WALTER RANSON, M.D., Ph.D., Late Professor of Neurology and Director of Neurological Institute, Northwestern University Medical School, Chicago; revised by SAM LILLARD CLARK, M.D., Ph.D., Professor and Chairman of Anatomy, Vanderbilt University School of Medicine, Nashville. ed. 10. 622 pages. Philadelphia and London, W. B. Saunders Co., 1959.

This volume was first published in 1920 as a fundamental textbook in the anatomy of the central nervous system. New additions have appeared approximately every 4 to 6 years since that time. The ninth edition was copyrighted in 1953. The changes made in the tenth edition are minimal and not fundamental. A few of the drawings have been changed, mostly for the better. The drawings of the sagittal section of the lower spine and those showing the nerves of the carotid body, carotid sinus, and aortic arch are improved. An oblique view of the brain stem to show the cranial nerves has been added.

The description of the blood supply of the spinal cord has been moved from the chapter concerning gross anatomy of the nervous system to the chapter concerning blood supply. There have been other minor rearrangements as well. The chapter on the cerebellum contains two new paragraphs on the adaptation to electrical responses obtained in the cerebellum after auditory and after visual stimuli. Other minor additions appear, such as the estimation of the neurons in the cerebrum of a shrew and an estimate of the number of neurons in the human cortex (7,000 million).

Though the changes between the ninth and tenth editions are minimal, the printing and reproduction of diagrams in the tenth edition appear to be slightly superior to the ninth. The book is bound attractively. Also the volume remains an excellent fundamental text for the teaching of neuroanatomy to medical students. However, the apparent difference between the ninth and tenth editions is so little that owners of the ninth will probably not be eager to purchase the tenth.

—Edmund M. Fountain, M.D., Houston.

Clinical Neurology

ISRAEL S. WECHSLER, M.D., Consulting Neurologist, Mount Sinai Hospital, New York. ed. 8. 782 pages. $11. Philadelphia and London, W. B. Saunders Co., 1958.

The value of this textbook of neurology, written by an eminent clinician, lies in its fulfillment of the purpose indicated in the preface: "It seems to me exceedingly important, now that neurology is being so greatly enriched experimentally, to bear in mind that sound clinical observation and accurate diagnostic correlation of signs and symptoms will ever continue to be the basis of the scientific practice of neurology."

The aspiring student of neurology, be he generalist or specialist, would do well to study, again and again, the entire contents of this concise volume. It is replete with terse descriptions of the gamut of neurologic disorders, written in a style deceptively simple, yet containing a wealth of information.

Treatment for the most part is up to date; for instance, the use of penicillin in neurosyphilis is amply presented. Isoniazid is mentioned in the treatment of tuberculous meningitis. But, it might be given greater emphasis, especially its early use with the need to supplement it with corticosteroid drugs when serious complications threaten. Corticosteroids, in fact, are mentioned only briefly and for relatively uncommon conditions; more important indications for their use include disseminated encephalitis and neuritis (sporadic or following infections or inoculations) and other "neuroallergic" states. There is abundant material on epilepsy, but some of it is disarranged; the distinction of petit mal from minor temporal automatisms, important as it is from the viewpoint of treatment, is not clearly brought out. More attention also could be paid to the syndromes of partial obstruction of the major cerebral arteries.

The criticisms that could be raised regarding individual points such as these are minor compared with the wealth of accurate detail which is to be found particularly in the descriptions of clinical entities. This is an excellent reference book for the quick answers on neurologic matters that are needed in medical practice.

—Paul M. Levin, M.D., Dallas.

Surgery of the Sympathetic Nervous System

PROFESSOR SIR JAMES PATERSON ROSS, K.C.V.O., LL.D., M.S., F.R.C.S., F.R.A.C.S., F.A.C.S., Director of The Surgical Professorial Unit, St. Bartholomew's Hospital, London. ed. 3. 170 pages. $8. London, Bailliere, Tindall and Cox, 1958.

The author of this book presents a practical outline of the anatomy and physiology of the sympathetic nervous system and its relationship to the surgical treatment of disease. It presents his means of selection of typical cases for sympathectomy, including the tests for local effect of temperature on the blood vessels, the influence of body temperature upon peripheral vessels, temporary paralysis of the sympathetic nerves by means of local anesthetic drugs, and measurement of blood flow by means of a plethysmograph. Vascular disorders treated by sympathectomy, Reynaud's disease, acrocyanosis, perniosis, erythrocyanosis frigida, and obliterative arteritis are presented with clinical history, tests, and reports of surgical results. The author presents the surgical technique used in the treatment of his cases. He gives an explanation of the etiology of causalgia as well as its treatment which is helpful in the understanding and care of these patients.

This book is of greatest value for its conciseness and representative cases and their clinical results.

—Richard D. Price, M.D., San Antonio.

Principles of Urology

MEREDITH F. CAMPBELL, M.D., F.A.C.S., Emeritus Professor of Urology, New York University; Lecturer in Urology, University of Miami School of Medicine. 622 pages. $9.50. Philadelphia and London, W. B. Saunders Co., 1957.

Once again, Campbell has met the challenge of the era, in concisely condensing present day elementary urology into 600 well written pages. I say this because of the recommendations of the American Board of Urology and the response of the professors of urology in our leading medical schools to organize better the undergraduate training in urology, better to prepare physicians for entering accredited urological residencies, and in general, to raise the standards of practice in medical and surgical urology.

As intended from its inception, Campbell's textbook is designed with a twofold purpose: to provide the broad fundamentals of urology for instruction of the medical student and to serve as a practical guide for any general practitioner as he encounters urological problems.

Dr. Campbell has divided the 14 chapters into orderly and logical sequence: correlating urological signs and symptoms, the art and value of the history and physical examination, pertinent laboratory data, the applied anatomy, embryology, anomalies and physiology of the urogenital tract, infections, obstructions, neuromuscular diseases, injuries, tumors, calculus diseases, the adrenal, and a special chapter on female urology. He also has introduced two features of recognized and accepted pedagogy, namely, an introductory chapter on semantics, word usage in urology, and a syllabus of common urologic terms. In closing, he has added a questionnaire section with page reference to the answers. To the practicing clinicians who lose their academic inclinations away from teaching centers, it is unfortunately customary to become more complacent as we reap the benefits of many years' toil. I challenge such physicians periodically to refresh themselves by taking this quiz.

I not only recommend Campbell's "Principles of Urology" as an ideal text book for instruction and reference in the clinical years of medical school, internship, and residency, but urge general practitioners and nonurological specialists to utilize it in their reference library.

Finally, I should like to thank Dr. Campbell for continuing to disseminate his knowledge, experience, and love of his profession. No longer is the urologist the "off-shoot" of the general surgeon, the "half-baked" internist, or the frustrated radiologist. He has become proficient in all three as related to the urinary tract and male reproductive tract; he recognizes his limitations, and he strives for excellence therein.

—Richard H. Harrison, III, M.D., Bryan.

The Practice of Sanitation

EDWARD SCOTT HOPKINS, Instructor, McCoy College, Johns Hopkins University; Consulting Sanitary Engineer, and WILMER HENRY SCHULZE, Assistant Commissioner of Health, Sanitary Section, Baltimore City Health Department. ed. 3, 487 pages. $8. Baltimore, Williams and Wilkins Company, 1958.

Sanitation may be defined as the control of those factors of the environment affecting public health. This text has been developed as a guide for the training of physicians, sanitarians, nurses, and students in sanitary engineering. The pertinent facts comprising sanitation practice as it is today in the United States are as far as possible brought together in one volume. Needs stressed are improved water supplies; additional sewerage systems; better refuse collection and disposal facilities; and more adequate control of milk, food, and drink.

Geographic Ophthalmology

WILLIAM JOHN HOLMES, M.D., Attending Ophthalmologist, St. Francis Hospital, Territorial Hospital, Hale Mohalu, and Kalaupapa Settlement; Formerly Professor of Ophthalmology, Christian Medical College, Vellore, India. 293 pages. $8.50. Springfield, Ill., Charles C Thomas, 1959.

This book is well made; the print is large and distinct; the pictures are good and plentiful; the bibliography is ample.

Edited by Holmes, there are chapters on "Progress of Ophthalmology"; "Blindness in India"; "Ocular Affections of Malaria"; "Leprosy"; "Onchocerciasis"; "Trachoma"; "Non-Trachomotous Conjunctivitis"; "Phlyctenular Conjunctivitis"; "Corneal Ulcers"; "Zerophthalmia"; "Westernization of the Oriental Eye"; "Pterygium"; "Anterior Chamber Surgery and Half-Corneal Incisions"; "Penetrating Keratoplasty"; "Cataracts"; "Solar Chorioretinal Burns"; and "Orbital Rodent Ulcers." The book, admittedly limited, discusses these conditions as influenced by the geography of Asia, Africa, and Australia. Apparently none of the authors were born in the United States.

Holmes suggests a method of simultaneous worldwide research on a given subject. Thoroughly and interestingly he writes the chapter on that wonderful disease, leprosy, giving the latest treatments and calling attention to the very different manifestations in various geographic locations. United States oculists will hardly agree that "superficial punctate keratitis is considered pathognomonic of the disease."

Sato of Japan gives the techniques for anterior chamber surgery and half-corneal incisions and discusses the surgery of myopia. Ocampo of the Philippines in his chapter on nontrachomatous conjunctivitis, decries the lack of uniformity of ophthalmic terms.

Ching of Hong Kong advocates office cataract extraction without hospitalization, a procedure practiced successfully by Bruns of New Orleans 40 years ago. Cataract in India is considered part of a general nutritional deficiency. There is an enormous amount of eye work in India awaiting ambitious, young oculists.

Guka of India reports that 50 per cent of malarial patients show ocular pathology, a rate unheard of in the United States.

Phlyctenular conjunctivitis is discussed as a tubercular manifestation. Forst of Philadelphia taught that it could always be cured by elimination of too much sweets in the diet and the local use of powdered calomel. This method has never failed me.

A unique chapter by Sayoc of the Philippines deals with westernizing the oriental eye. The operation has become popular with oriental women.

Thus, we learn that in Asia and Africa the economic and social problems of eye diseases are largely nutritional, while in the United States they revolve about lawsuits and time off with full pay.

—J. J. Horton, M.D., Buda.

Practical Dermatology

GEORGE M. LEWIS, M.D., F.A.C.P., Professor of Clinical Medicine (Dermatology), Cornell University Medical College; Attending Dermatologist, The New York Hospital. ed. 2. 363 pages. $8. Philadelphia and London, W. B. Saunders Company, 1959.

This book represents a new and up-to-date edition of a textbook which has already been widely used by several medical schools throughout the country and by many practitioners of medicine. The book is designed primarily as an aid in the teaching of medical students and as a practical guide for the general practitioner and for specialists other than dermatologists. The book is well written and for each disease it explains the pertinent symptoms, etiology, pathology, diagnosis, and treatment. Considerable space is given to those diseases which are encountered more frequently while in most cases the relatively uncommon ones are briefly discussed.

An attempt is made by the author to relate various dermatological disorders with diseases of internal origin. Two chapters of the text are used exclusively to discuss dermatological therapy. One chapter briefly relates the basic sciences to the field of clinical dermatology. An adequate bibliography is presented together with a helpful index. Some 121 illustrations of good quality are presented. This book is highly recommended for those who wish an introduction into the field of dermatology or who wish to review this general subject.

—Marvin E. Chernosky, M.D., Houston.

Medical Biology and Etruscan Origins; Ciba Foundation Symposium

G. E. W. WOLSTENHOLME, M.B., B.Ch. and CECILIA M. O'CONNOR, B.Sc. 255 pages. $9.50. Boston, Little, Brown, and Company, 1959.

Therapeutic Electricity And Ultraviolet Radiation

SIDNEY LICHT, M.D., Honorary Member, British Association of Physical Medicine, Danish Society of Physical Medicine, and the French National Society of Physical Medicine. vol. 4. 373 pages. $10. New Haven, Conn., Elizabeth Licht, Publisher, 1959.

Nine contributors from Yale, The Mayo Foundation, Virginia, New York, Russia, and England serve to produce a fine authoritative text on the two physical agents named in the title of this book.

Its 373 pages are about equally divided in treating each of the subjects.

Electroshock therapy (EST), cardiac defibrillators, and cardiac pacemakers are treated adequately and hold the interest of both the internist and psychiatrist. The psychiatrist, of course, is interested in electric stimulation in the various myopathic states and iontophoresis. In these fields, the chapters are rich and glowing in general, as well as highly technical information.

The fifth chapter, from Russian sources, concerns the fascinating neurohumoral modus operandi in electro sleep therapy, involving phosphorylation and depressive action of cellular oxidation. Patients suffering from neurasthenic neuroses improve considerably after 15 to 20 such sessions, Obrosow states, with the best results in hallucinations, paranoid and catatonic schizophrenia. This is not to be confused with EST. It would be worth while for others to explore this simple procedure further.

This reviewer contends that the most fascinating chapter of the book is Dr. Licht's history of ultraviolet therapy. In this land of Texas sunshine perhaps this "free" therapeutic agent is used too infrequently or inadvertently remains an "unknown" prophylactic of many unrecognized disorders. Interestingly, skin tanning by ultraviolet rays with the mercury vapor arc is grayer than that from the carbon arc, which is lighter than that from natural sunlight.

Actual physics involved is highly technical and is not for the casual reader, but makes for completeness, and renders the little volume an indispensable reference source.

Bibliography and references are complete and extensive, and no hospital or clinic interested in physical medicine can well afford to be without this fourth volume of the Physical Medicine Library series on its bookshelves.

—John J. Bunting, M.D., Houston.

Orr's Operations of General Surgery

HIGGINS, GEORGE, M.D., F.A.C.S., Associate Professor of Surgery, University of Kansas School of Medicine; Lecturer in General Surgery and Surgical Technique, University of Kansas City School of Dentistry; Chief of Surgical Service, Veterans Administration Hospital, Kansas City, Mo., and ORR, THOMAS G. JR., M.D., F.A.C.S. 1016 pages. ed. 3. $20. Philadelphia and London, W. B. Saunders Company, 1958.

In general this book is a good one to be used by a man doing all types of surgery, except for the more extensive procedures in the surgical specialties. The illustrations are for the most part from different sources.

The section on the digestive system is good with fine illustrations and descriptions of techniques. The references for the most part are ten years old with only 12 to 15 articles quoted from the literature since 1950 and it is felt that pediatric surgery is incompletely dealt with.

The references are not as recent as one would like in a book published in 1958. There are certain parts in each section that are incomplete, however, they try to cover a tremendous amount of material and from this standpoint it is as good or better a book than any I have read.

—Leonard Coleman, M.D., Navasota.

Industrial Carcinogens

R. E. ECKARDT, M.D., Ph.D., F.A.C.P., Director, Medical Research Division, Esso Research and Engineering Company, Linden, N. J.; Associate Clinical Professor of Industrial Medicine, New York University, Postgraduate Medical School; Instructor in Medicine, Cornell University, Medical School. 164 pages. $6.50. New York and London, Grune & Stratton, 1959.

An excellent concise monograph by an authority on occupational cancers, the book has brief descriptions of diagnosis, etiology, frequency and treatment of occupational cancers of skin, bladder, and respiratory tract. Industrial problems and their prevention with asbestos, chromates, nickel, oils, and irradiation are discussed.

One-third of the book is devoted to a short review of experimental work and the difficulties in correlation between animal carcinogens and humans. This insight into the difficulties of interpretation of experimental work is a highly valuable part of the book. The author stresses repeatedly the prolonged years of exposure necessary to develop an occupational cancer.

In my opinion this book is essential for physicians responsible for industrial medical care.

—Charles D. Walther, M.D., Port Arthur.

Elementary Statistics; With Applications In Medicine and the Biological Sciences

CROXTON, FREDERICK E., Ph.D., Professor of Statistics, Columbia University. 376 pages. $1.95. New York, Dover Publications, Inc., 1953.

This is a book that will be of interest to social scientists, psychologists, geologists, mathematicians, physicists, chemists, or the general reader interested in statistics. It begins with definitions of fundamental terms and concepts and gradually builds up to the establishment of all fundamental techniques and methods of elementary statistics.

The author, assuming only a modest knowledge of mathematics and no prior knowledge of statistics, explains to medical men how the statisticians arrive at their results, how to interpret these results, and how to test their validity.

The book has 12 chapters dealing with the matter of statistics and also includes numerous examples from fields of investigation which are familiar to most physicians and medical researchers.

Cardiac Arrest and Resuscitation

HUGH E. STEPHENSON, JR., M.D., Professor and Chairman, Department of Surgery, University of Missouri School of Medicine, Columbia, Mo.; Chief of Surgical Service, University of Missouri Hospitals; Associate-in-Charge, Cardiovascular Program, State Crippled Children's Service, University of Missouri; Consultant, Whiteman Air Force Base Hospital; Markle Scholar, John and Mary R. Markle Foundation, 1954-1959. 378 pages. $12. St. Louis, The C. V. Mosby Company, 1958.

Since cardiac arrest is a relatively infrequent experience for any particular physician, it is, therefore, imperative that he be able to treat his first case with maximum efficiency without waiting to have gained any personal experience.

In postulating this principle, the author draws from his remarkably rich personal experience and from the more than 1,700 cases of the International Cardiac Arrest Registry of which he is the head.

The reader gains the critical understanding and broader perspective so necessary for a reasonable, definitive and, it is hoped, successful approach to the individual case.

—Robert G. Umstattd, M.D., Austin.

★ **Texas Medical Association**

PR to Be Emphasized At TMA Conference

All Texas presidents, presidents-elect, secretaries, public relations chairmen, and delegates of county medical societies are asked to tie a string around their finger as a reminder of the fifth annual public relations conference which will be held Saturday, September 26, at Texas Medical Association's headquarters building in Austin.

Approximately 25 boards, councils, and committees will meet Friday, September 25, and Saturday, September 26. The Executive Board meeting will be on Sunday at 9:30 a.m. The Board of Trustees will meet Friday at 6 p.m. and the Board of Councilors will meet Saturday at 9 a.m. The Orientation program for new and transfer members of the Association also will be held Saturday; 150 doctors are expected to attend.

Guest speakers to participate in the program will include Dr. Donald E. Stubbs, Washington, D. C., chairman of the board of directors for Blue Shield Medical Care Plans; Dr. Frederick C. Swartz, Lansing, Mich., chairman of the American Medical Association's Committee on Aging; Chester Lauck, Houston, "Lum" of "Lum and Abner" fame and now with Continental Oil Company; and Francis Boyer, chairman of the board of directors of Smith, Kline & French Laboratories, Philadelphia.

A hospitality hour, courtesy of the Charles O. Finley and Company, and an opportunity to attend the football game featuring the Universities of Maryland and Texas will complete the day's activities. All members of the Association and its Woman's Auxiliary are invited.

★ American Medical Association

Scientific Program to Spark AMA Clinical Session

An outstanding program has been planned for the first American Medical Association clinical meeting ever to be held in Dallas, announced Dr. Everett C. Fox, general chairman. The meeting is scheduled for December 1-4.

Closed circuit television programs, lectures, symposiums, panels, and breakfast round table conferences, in addition to excellent exhibits, will be among the attractions of the meeting.

Texas specialists will present closed circuit television programs on the following subjects: surgery clinic, neurology, dermatology, cardiovascular work-up, ophthalmology, orthopedics, obstetrics and gynecology operative clinic, and transatlantic CPC.

The symposiums to be presented will be those on cerebrovascular insufficiency, soft tissue injury, whiplash injury of the neck, iatrogenic disease, intestinal obstruction, biliary tract surgery, newer laboratory procedures, carcinoma of the breast, anemia, problems with antimicrobial drugs, premarital and marital counseling, and problem children.

Among the out-of-state lecturers will be the following: Dr. Buford Word, Birmingham; Dr. Maxwell Johnson, Tulsa; Dr. Arthur M. Olsen, Rochester, Minn.; Dr. William T. Foulk, Rochester, Minn.; Dr. Walton R. Akenhead, New Orleans, La.; Dr. Stewart Wolf, Oklahoma City; Dr. John M. Howard, Philadelphia; Dr. Harwell Wilson, Memphis; Dr. Lloyd G. Bartholomew, Rochester, Minn.; Dr. Harry L. Arnold, Jr., Honolulu, Hawaii; Dr. Franklin C. Behrle, Kansas City; Dr. Henry Buchtel, Denver; Dr. Blair E. Batson, Jackson, Miss.; Dr. Tullos O. Coston, Oklahoma City; Dr. Don H. O'Donoghue, Oklahoma City; Dr. Watts R. Webb, Jackson, Miss.; Dr. Peter Safar, Baltimore; Dr. James F. Dickson, Philadelphia; and Dr. James W. Culbertson, Memphis.

Civil Defense Conference To Be Held in Chicago in November

The tenth annual County Medical Societies Civil Defense Conference will be held in Chicago, November 7-8, at the Morrison Hotel.

The purpose of the conference, which is sponsored by the American Medical Association's Council on National Defense, is to inform and assist medical and health personnel as to their roles in the event of a disaster. Methods employed in handling two disasters which occurred within the past year will be discussed during the 2 day meeting.

Additional information may be obtained by writing Frank W. Barton, Secretary, Council on National Defense, American Medical Association, 535 N. Dearborn, Chicago 10.

Information to Hospitals Will Be Furnished by AMA

A new service to keep hospitals informed of developments in hospital planning, financing, design, and construction has been announced by the American Medical Association.

Starting in October, the Association will offer the Hospital Planning Abstract Service to provide a concise summary of what is appearing in journals, reports, or in publications.

The abstract service will be furnished to American Hospital Association members at a cost of $10 a year. Members who subscribed before September 15 will receive a bonus of two extra sets of cards for October and December in addition to the 1960 series.

★ County Societies

County Society Briefs

Mr. E. Stanley Gardner, writer of the Perry Mason mystery stories, was speaker at a joint meeting of the *Bexar County Society* and the local Bar Association held September 4 in San Antonio. He spoke on "Improving Relations Between the Legal and Medical Professions."

"Diagnostic Use of Radioisotopes" was the title of a panel discussion at the June 2 meeting of the *Tarrant County Society*. Those participating on the program were Drs. Dewey W. Johnston, C. D. Fitzwilliam and W. H. Neil of Fort Worth. Following the program several amendments to the society's by-laws were read and adopted. It was decided that the membership of the society should be assessed $10 to cover necessary expenses.

The *Hill County Society* met September 8 in Hillsboro. Drs. Louis Gibson, Andy Megarity, and Willard Karn of Corsicana spoke on "Diagnosis and Treatment of Occlusive Vascular Disease."

The *San Patricio-Aransas-Refugio Counties Society* held its regular meeting August 5 in Sinton. Dr. and Mrs. C. A. Selby of Sinton and Dr. and Mrs. Arch Koontz of Woodsboro were co-host.

Dr. John F. Thomas of Austin, chairman of Constitution and By-Laws of the Texas Medical Association, spoke on "Recent Changes in the Constitution and By-Laws of Texas Medical Association."

★ District Societies

District 8 Meets in Victoria

District 8 Medical Society held its annual meeting, September 19, at the Victoria Country Club in Victoria.

The scientific program, held in the afternoon, included presentations made by staff members of the University of Texas Medical Branch in Galveston. The program consisted of the following talks: "Clinical Significance of Cardiac Sound," Dr. J. Leonard; "Conservative Management of Portal Hypertension," Dr. J. R. Derrick; "Aortic Resection of Abdominal Aneurysms," Dr. Fred J. Wolma; and "Anticoagulant Therapy," Dr. E. D. Futch. Dr. Franklin W. Yeager, Corpus Christi, President, Texas Medical Association, spoke at the luncheon and dinner meetings. His evening talk was entitled, "What Goes On."

Immediately following the scientific program was a brief business meeting. A nine hole golf tournament was held during the morning.

District 13 to Be Financed By County Medical Societies

It was decided that each county society in the Thirteenth District Medical Society would pay 50 cents per member to finance the district society at the June 20 meeting of the district in Mineral Wells.

Dr. Travis Smith of Abilene, member of the Board of Councilors of the Texas Medical Association, brought out at the meeting that each county society was responsible for controlling its own advertising in the yellow pages listing of the phone directory. It was pointed out that many doctors were using this space as advertising. A man may list himself in the directory under the title heading "Physicians, Surgeons, M.D." and also under a specialty title if this practice is recognized by the county medical society, said Dr. Smith. There is to be no bold faced type. All type should be the same. However, listing in areas where a doctor does not have an office for medical practice is not allowed.

Also, at the meeting Dr. Smith told members that an honorary member automatically becomes a member of a county society wherever he moves. He is a member of the Texas Medical Association regardless of where he lives.

★ Woman's Auxiliary

Auxiliary Conference Program To Feature National President

The National Auxiliary President will attend; an outstanding medical recruitment film will be premiered; public health problems in civil defense will be presented; members will be enlisted for a new project; an invitation will be issued to attend the Texas Medical Association's Conference on Public Relations; and a coffee, dinner, luncheon, and tea promise time for relaxation for the state and county leaders—these will be just some of the high points of the annual Fall Conference of the Woman's Auxiliary to the Texas Medical Association being held at Austin headquarters, September 24-25. Mrs. Haskell D. Hatfield, El Paso, President, will preside at the Executive Board meeting on the afternoon of the twenty-fourth and Mrs. Allan C. Shields, Victoria, is chairman of the School of Instruction, planned for all day on the twenty-fifth.

Mrs. Frank Gastineau

Mrs. Frank Gastineau, Indianapolis, President of the Woman's Auxiliary to the American Medical Association, will speak on "Individual Responsibility for Better Community Health."

One of the most talked about sessions at the national meeting in Atlantic City, "Public Health Problems in Civil Defense," will be repeated for Texas members by Lt. Col. Converse R. Lewis, Jr., Fort Sam Houston.

"I Am a Doctor" is a new medical recruitment film and will have its premiere showing in Texas at the conference.

The role of the Auxiliary in promoting voluntary health insurance in Texas will be outlined by Dr. Russell L. Deter, El Paso, chairman of the Committee on Health Insurance of the Texas Medical Association. Mrs. William D. Nicholson, Freeport, has been appointed the Auxiliary chairman.

As editor of the proposed Auxiliary cookbook to be sold to benefit the Association's Memorial Library and co-chairman of the School of Instruction, Mrs. Ben Simms, Austin, will blend her jobs to provide entertainment at the dinner planned to follow the Executive Board meeting. "The Doctor's Wife Who Came to Dinner" is the title of the event.

Mrs. Hatfield is hostess for a tea honoring Mrs. Gastineau, immediately following the School of Instruction. Coffee and a buffet luncheon will be served earlier in the day.

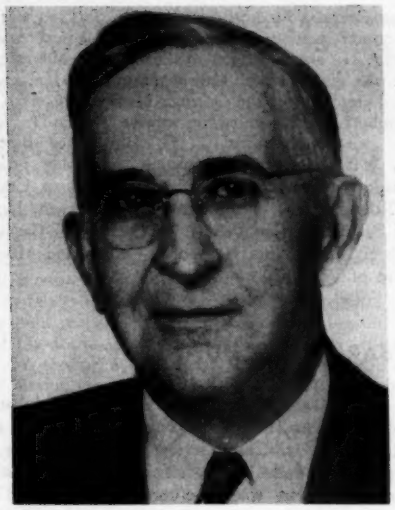
Packets of new program aids will be provided and county leaders will have an opportunity to discuss mutual interests and problems at this conference, designed to inspire all to "Cherish Our Heritage in Health."

RECENT DEATHS

DR. ROBERT CUMMING

Dr. Robert Cumming, 59, died July 6, 1959, of cancer at his home in McGregor. Dr. Cumming was born July 5, 1900, in Bernardsville, N. J. He was graduated from the University of Edinburgh and the Edinburgh University Medical School, and the Royal College of Physicians and Surgeons, all in Scotland. Following his graduation from medical school, Dr. Cumming was affiliated with the Boston Psychopathic Hospital from 1929 to 1930 and with the Bloomington Hospital at Bloomington, N. Y., and the White Plains Hospital at White Plains, N. Y., and Hudson River State Hospital at Poughkeepsie, N. Y., from 1930 until 1935, when he went into private practice. A veteran of both world wars, he was awarded five ribbons for his service on the Italian front during World War I. During World War II, he was a lieutenant colonel with the Army Medical Corps. Prior to going to McGregor in 1949, Dr. Cumming was chief of combined services at the Veterans Administration Hospital in Waco for 3 years. Although his practice in McGregor was general, he did give special at-

DR. ROBERT CUMMING



DR. DUDLEY JACKSON, SR.

tention to neuropsychiatry. He had been the health officer at McGregor for the past 11 years.

Memberships in medical organizations included the McLennan County Medical Society, Texas Medical Association, American Medical Association, American Academy of General Practice, American Heart Association, and American Psychiatric Association. He was a licentiate of the Conjoint Board of Scotland, a diplomate of the National Board of Medical Examiners of the United States, and a fellow of the Royal College of Physicians and Surgeons of Scotland. Dr. Cumming was immediate past president and a member of the board of directors of the McGregor Rotary Club, a past secretary-treasurer for the Brotherhood of St. Andrew, and a member of the American Legion and St. James Episcopal Church.

Dr. Cumming is survived by his wife, Mrs. Veronica Cumming; two daughters, Mrs. John Miller and Miss Grace Kirk Cumming, both of Poughkeepsie; one granddaughter, Gay Knox Miller, also of Poughkeepsie; one brother, Major Edward Stevens Lewis Cumming of Arlington, Va.; and one niece, Mrs. Robert Sanders III of Austin.

DR. DUDLEY JACKSON, SR.

Dr. Dudley Jackson, Sr., of San Antonio, widely known cancer researcher, died July 25, 1959, of an acute coronary occlusion.

Dr. Jackson, son of Charles S. and Sallie (Wright) Jackson, was born August 26, 1890, in Eddy. He received his preliminary education in Brownwood schools and attended Daniel Baker College before being graduated from the University of Texas Medical Branch in Galveston in 1917. He interned in the United States Army and served with the rank of first lieutenant both in the United States and overseas. He practiced in San Antonio, specializing in cancer, from 1919 to his death. He did research in snake bites and rabies and through grants of the National Institute of Cancer, carbohydrate metabolism in cancer. He was author of a number of medical papers.

The physician was a member of the Bexar County Medical Society (president in 1932), American Medical Association, Texas Medical Association (chairman of its Section on Surgery in 1934), Texas Surgical Society, Southern Medical Association, and American Academy-International of Medicine. He also was a fellow of the American College of Surgeons and International College of Surgeons. He formerly served as consultant in surgery at Brooke Army Hospital.

Dr. Jackson received the 1954 medal of the American Cancer Society, and the certificate of merit of the Texas Division of the American Cancer Society. He was also the holder of a Walter Reed Society award for experiments in cancer wherein he transplanted living cancer cells into his own body and removed them after study.

He and the late Maury Maverick, Sr., helped found the National Cancer Institute at Bethesda, Md. Dr. Jackson was largely instrumental in getting legislation for a hospital and tumor clinic in Texas—now known as M. D. Anderson Hospital and Tumor Institute. Several years ago, he helped organize the Pan American Cancer Foundation, a group dedicated to the care of cancer patients in the Southwest and Mexico who can not afford treatment. His hobbies included hunting and fishing.

Survivors include Dr. Jackson's wife, the former Dr. Martha Nell Beal of Bertram, whom he married October 5, 1919, in Beaumont; two children, Dr. Dudley Jackson, Jr., of San Antonio and Mrs. John Hichman of Wichita, Kan.; and three sisters, Mrs. Tina Lawless of Leakey, Mrs. Edna McClendon of Brownwood, and Mrs. Mabel Hodges of San Antonio.

DR. THOMAS G. JACKSON

Dr. Thomas Grant Jackson, Gorman, died March 17, 1959, as a result of a heart attack.

A native of Vernon, Ala., the 77 year old physician was graduated from the Memphis Hospital Medical College, Memphis, Tenn. In 1910 he began his practice of medicine at Grovel Hill, Tenn., remaining there until 1917. That year he moved to Texas, where he practiced at Garden City and Carbon before going to Gorman in 1946. He continued his Gorman practice until 1950.

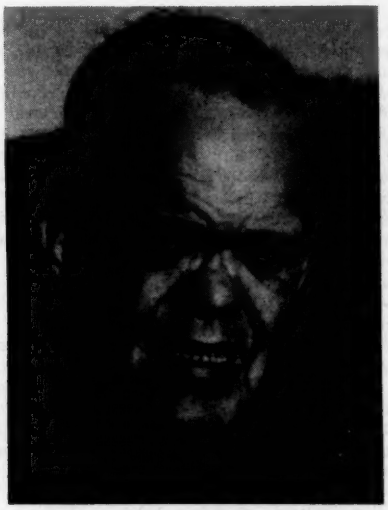
A past president of the Eastland County Medical Society (now the Eastland-Callahan-Stephens-Shackelford-Throck-

morton Counties Medical Society), Dr. Jackson was elected to honorary membership in the Texas Medical Association in 1957. He also belonged to the Gorman Masonic Lodge, was a past master of the Carbon Masonic Lodge, and was a steward emeritus for the Gorman Methodist Church.

Members of the family who survive include Dr. Jackson's second wife; three sons, T. G. Jackson of Bartlesville, Okla., W. B. Jackson of Seminole, and Max Jackson of Eastland; two daughters, Mrs. John Webb of Crane and Mrs. Tally Bond of Phoenix, Ariz.; one stepson, Jack Powers of Beaumont; a brother, J. W. Jackson of Carbon; and two sisters, Mrs. Vinia Henson of Carbon and Mrs. Elbert Graham of Vernon.

DR. BARKER D. CHUNN

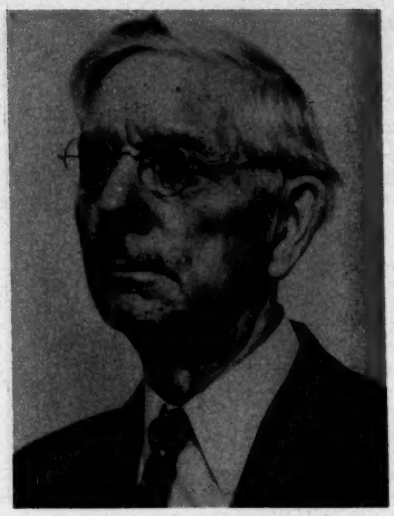
Dr. Barker Daniel Chunn, Beaumont, died in an automobile crash August 8, 1959. Born in Lingleville on August 19, 1906, Dr. Chunn received his preliminary education at Wichita Falls Junior College and at the University of Texas in Austin, where he received a bachelor of arts degree. In 1934 he was graduated from the University's Medical Branch at Galveston. He interned at St. Therese Hospital in Beaumont and sub-interned at John Sealy Hospital in Galveston. A resident of Beaumont since 1934, Dr. Chunn had operated the Chunn Clinic there since 1940. He specialized in surgery.



DR. BARKER D. CHUNN

Dr. Chunn was a member of the Jefferson County Medical Society, the Texas Medical Association, and the American Medical Association. He belonged to the Beaumont Club, the Beaumont Country Club, the Knights of Columbus, St. Anne's Catholic Church, the Serra Club, and Theta Kappa Psi fraternity.

Survivors include his wife of Beaumont; a daughter, Mrs. John Rice of Richardson; a son, Barker Chunn, a premedical student at the University of Texas; a brother, Dr. Ed Keith Chunn, a Houston physician; and five grandchildren.



DR. JESSE J. DAVIS

DR. JESSE J. DAVIS

Dr. Jesse James Davis, Higgins, died June 13, 1959.

The well known Panhandle physician was born in 1873. He attended schools in St. Louis, Mo., and Louisville, Ky., and was graduated in 1902 from the Georgia College of Eclectic Medicine and Surgery in Atlanta, Ga. In 1902 he also married the former Miss Virginia Williamson and established his practice at Fairfield. Eighteen months later he moved to Lipscomb where he practiced for a short time. He then moved to Higgins where he remained for the next 55 years. Although his practice in Higgins was general, he did give special attention to otolaryngology and ophthalmology.

A member of the Texas Medical Association since 1909, Dr. Davis was elected to honorary membership in this Association in 1950. He belonged to the American Medical Association, the Gray-Hansford-Hemphill-Lipscomb-Roberts-Ochiltree-Hutchinson-Carson Counties Medical Society, and the District 3 Medical Society. Dr. Davis was also a fellow of the American Academy of Ophthalmology and Otolaryngology and was president of the Higgins Lions Club for several years.

Surviving Dr. Davis are his wife; a son, Jesse R. Davis of Spearman; four grandchildren; and five great-grandchildren. Two adult sons preceded Dr. Davis in death.

DR. FRANK A. ELLIS

Dr. Frank Alberson Ellis, Corpus Christi urologist, died July 12, 1959, of bronchopneumonia, following second and third degree burns from a fire in his home.

A native of Durham, N. C., Dr. Ellis was born December 20, 1893, the son of W. F. and Lura (Wood) Ellis. He received his preliminary education at Durham, N. C., and later obtained his bachelor's degree from Duke University. In 1918 he was graduated from the University of Pennsylvania Medical School. Following graduation he served an internship and residency respectively at St. Luke's Hospital in New York and at the Louisville City Hospital in Louis-

ville, Ky. In 1936 he came to Corpus Christi, remaining there until his death. During World War II, he served with the United States Navy Medical Corps. He saw service in Guadalcanal, the Solomon Islands, and New Zealand, and following the invasion and securing of Guadalcanal, he was given a Presidential unit citation.

The physician was a diplomate of the American Board of Urology and a member of the Nueces County Medical Society, the American Urological Association, the Texas State Urological Association, and the American Medical Association. He also belonged to the Texas Medical Association and was elected to inactive membership in this organization in 1957, following a heart attack. Dr. Ellis was a past president of the North Carolina Urological Association and a past president of the Rowan (North Carolina) County Medical Society. He was a Presbyterian and a member of the Kiwanis Club. He enjoyed hunting and gardening at his home.

In August, 1923, Dr. Ellis and the former Miss Marion E. Ramsay of Salisbury, N. C., were married. She survives as do one son, William Ramsay Ellis, a geologist with Phillips Petroleum Company, a daughter, Mrs. Richard Dewey of Houston, and one granddaughter, Emily Ann Ellis.

DR. FREDERICK D. AMES

Dr. Frederick Daniel Ames, Houston pediatrician, died August 12, 1959, of cancer.

The son of Dr. Roger Post and Jessie (Daniel) Ames, Dr. Ames was born in Columbia, Tenn., on March 13, 1907. He attended public schools in Georgetown, later attending Southwestern University at Georgetown and the University of Texas at Austin. He was graduated from the Harvard University Medical School in 1933. Following his graduation he served an internship and later did a residency at the Children's Hospital in Boston. Beginning his medical practice in Houston in 1935, he continued it until his death. From 1942 through 1946, he served in the United States Navy, being discharged with the rank of captain. In recognition of his military service he was awarded the Purple Heart and the Bronze Star. His late father, Dr. Roger Post Ames, recently was honored posthumously by the United States Congress for his work in the "Yellow Jack" experiments of 1898. He had been a colleague of Dr. Walter Reed during the series of tests aimed at combating yellow fever.

A president of the Houston Pediatric Society in 1953, Dr. Ames also was a member of the Texas Medical Association, American Medical Association, and Harris County Medical Society. Fraternal affiliations include Phi Delta Theta social fraternity and Phi Chi medical fraternity.

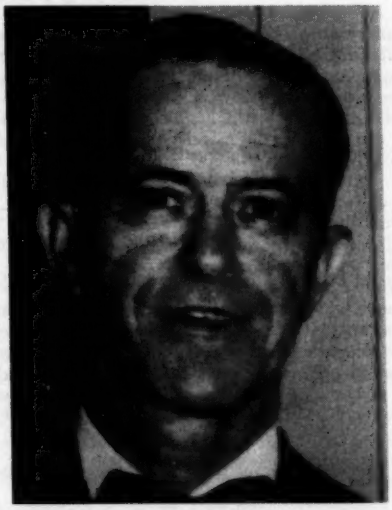
Dr. Ames is survived by his wife, the former Miss Hope Carl of Del Rio; a son, Frederick C.; a daughter, Marcia; his mother, Mrs. Roger Post Ames of Trion, N. C.; and two sisters, Miss Lulu Daniel Ames of Austin and Mrs. Edward Raffenspurger of Harrisburg, Pa.

DR. WATT BARCLAY

Dr. Watt Barclay, former mayor of Woodville, died June 10, 1959, as a result of a coronary occlusion.

A native of Chester, Dr. Barclay was born August 27, 1897, the son of Henry Franklin and Clara (Pool) Barclay. He received his preliminary college education at the University of Texas in Austin and was graduated in 1927 from Sam Houston State Teachers College at Huntsville. He taught school for several years and was principal of Liberty High School from 1925 until 1928. He received his degree in medicine in 1932 from the University of Tennessee College of Medicine, Memphis, his senior year serving an externship at St. Joseph's Hospital also in Memphis. That same year he was president of the Square and Compass Medical Fraternity. Later he was an intern at Jefferson Davis Hospital in Houston. Dr. Barclay began his practice of medicine at Woodville in 1933, continuing it until his death.

In 1935 he built Woodville's first hospital, maintaining it until the present county hospital was built. A chief of staff of the Tyler County Hospital at Woodville for the past several years, Dr. Barclay held this position at the time of his death. He was county health officer for several years, also serving as the county health unit physician for a brief period, and was mayor of Woodville from 1938 until 1948. During his tenure as mayor he was instrumental in reestablishing the city's credit rating, extending water works, opening many new streets, setting up a municipally owned gas system, establishing a volunteer fire department, floating bonds for a new city hall and fire station



DR. WATT BARCLAY

which was built according to his specifications, and instigating the passing of bonds for the building of Tyler County Hospital.

Dr. Barclay was secretary for four terms and president for three for the Hardin-Tyler Counties Medical Society. He was a member of the Texas Medical Association, American Medical Association, and the Texas Academy of General Practice. He was a member of the board of directors of the Postgraduate Medical Assembly of South Texas. A member of the Texas Medical Association for a number of years, he served in the Association's House of Delegates and on several committees.

Dr. Barclay was a charter member and a past president of the Woodville Rotary Club, a thirty-second degree Mason, and was active in Boy Scout and other youth work. He belonged to the Baptist Church, was a past president of the Athletic Council of Woodville Schools, served on the board of directors of the Chamber of Commerce, and was a past chairman of Tyler County Unit of the American

Cancer Society and the Tyler County Unit of the American Heart Association. His special philanthropic work was in helping small churches over the county and in encouraging and assisting boys and girls in going to college.

Members of the family who survive include his wife, the former Miss Myrtle Miller of Huntsville, whom he married in 1928; a daughter, Mrs. Dan L. Collie; two granddaughters, Susan Carolyn and Laura Miller Collie, all of Beaumont; a brother, Cass F. Barclay of Sweeney; and two sisters, Mrs. L. D. Jones and Mrs. Joe Vivian, both of Houston.

DR. OSCAR H. LOYD

Dr. Oscar H. Loyd, Vega physician, civic leader, and weather researcher, died July 21, 1959, at the age of 91.

A native of Doniphan County, Kan., Dr. Loyd was born April 11, 1868. He attended county schools and Emporia College in Emporia, Kan., before completing his medical training at Ensworth Medical College at St. Joseph in 1893. He practiced medicine in Everest and Corning, Kan., and Sni Mills, Mo., before moving to Vega in 1907. Dr. Loyd gained an area-wide reputation as a result of his volunteer work as weather observer. His independent studies were recognized by the U. S. Weather Bureau in several citations. Dr. Loyd promoted agricultural interests of the region. He prepared exhibits which were shown at fairs in different parts of the United States. For many years he was a member of the Highway 66 Association and in the roads program for Texas. Active in civic affairs since he first moved to Vega, he was instrumental in getting a Rock Island Railroad line built from Amarillo to Tucumcari, a line which later went through to the West Coast. He was one of the original organizers of the present Tri-State Fair. He also organized the Vega Chamber of Commerce.

Dr. Loyd's professional activities included membership in the Randall-Deaf Smith-Parmer-Castro-Oldham-Swisher Counties Medical Society, the Texas Medical Association, and the American Medical Association. He was a past vice-president and president of his county society and had been elected to honorary membership in the Texas Medical Association in 1955. Dr. Loyd organized the Oldham County Chapter of the Red Cross and was its chairman for 38 years. He was a charter member of the Vega Kiwanis Club and was a member of the Vega Methodist Church.

In 1895 Dr. Loyd married the former Miss Lula M. Mills. She died in 1953.

DR. CLARENCE P. HARRIS

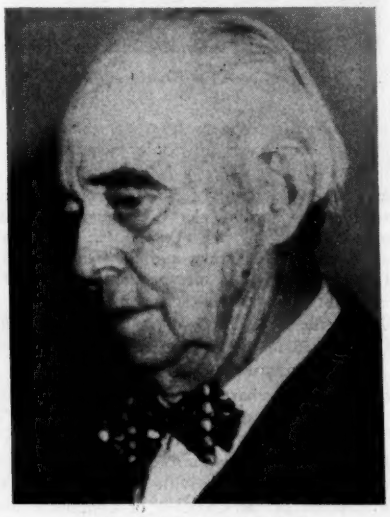
Dr. Clarence Pinkney Harris died July 19, 1959, in Houston.

Born July 14, 1894, in Cape Girardeau, Mo., Dr. Harris was the son of E. W. and Dona (McLane) Harris. He received his preliminary education in the public schools in Missouri, and attended Missouri State Teachers College in Cape Girardeau. He was graduated from Loyola University Medical School in Chicago in 1916. He interned at the West Suburban Hospital in Oak Park, Ill., in 1917 and did postgraduate work at Cook County Hospital in Chicago, Cornell School of Roentgenology in New York, and Harvard University in Boston. He served in the Medical Corps of the United States Army for 2 years, ranking from first lieutenant to captain. He was a specialist in roentgenology in Houston from 1920 until his death.

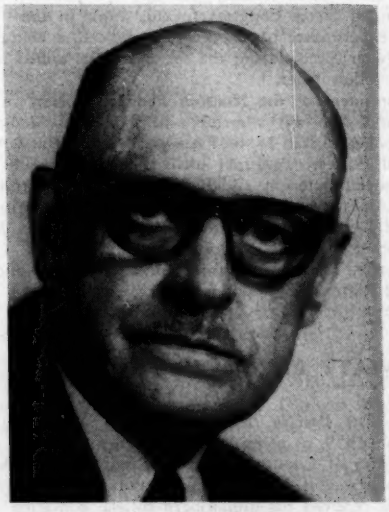
Dr. Harris was a member of the Harris County Medical Society, Texas Medical Association (serving as past chairman of the Association's Section on Radiology), American Medical Association, American Roentgen Ray Society, and Radiological Society of North America. He was a diplomate of the American Board of Radiology.

He had served as president of the Texas Radiological Society, president and emeritus member of the Houston Roentgen Ray Society, and chief of staff of St. Joseph's Hospital in Houston. He was a fellow of the American College of Radiology, a member of the Episcopal Church, and a past member of the River Oaks Country Club. He belonged to Phi Beta Pi and was a thirty-second degree Mason. He was author of several scientific articles.

Dr. Harris and Miss Jessie Garrison of Nacogdoches were married October 5, 1923, in Houston. She survives, as do a son, Clarence P. Harris, Jr., of Dallas; a sister, Mrs. Mabel Bowers, Cape Girardeau, Mo.; and three grandchildren.



DR. OSCAR H. LOYD



DR. CLARENCE P. HARRIS